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INTESTINES are that portion of the digestive canal into which the food is received after it has been partially digested in the stomach, and in which its further assimilation, the separation and absorption of the nutritive matter, and the removal of that which is excrementitious, take place. In an adult, the intestines consist of a convoluted tube of from 30 to 40 feet in length, and are, from the difference of their diameters in different parts, divided into small intestines, which comprise about the first four-fifths, and large intestines, which constitute the other fifth of their length. The former again are divided into the duodenum, into which the ducts from the liver and pancreas open, and in which the chyme from the stomach is converted into chyle [Digestion; Chyle]; the jejunum, in which the absorption of the nutritive matter of the food is principally effected; and the ileum. The large intestines are divided into the caecum, colon, and rectum.

The walls of the intestinal canal are composed of three principal coats or membranes. The exterior, which is smooth and polished, is called the peritoneal, and its principal use is to permit the free motions of the intestines within the abdomen, and of their several convolutions against each other, by rendering the effect of friction as slight as possible. Next to and within the peritoneal coat is the muscular, which is composed of two layers of fibers; an external, in which they are directed longitudinally, and an internal, of which the fibres encircle the intestine. By these the motions of the intestines and the propulsion of their contents are effected; the longitudinal fibres tending to shorten each portion of the canal, while the circular contract its diameter; and the two sets together producing a motion of the tube somewhat like that of a worm, whence it has received the name of vermicular motion. Beneath these layers, and separated from them by a stratum of cellular tissue, which has been sometimes called the fourth or nervous coat, is the mucous membrane, which is the most important part of the intestinal canal. It is everywhere beset by innumerable minute glands, by which the secretion of mucus and the other intestinal juices is carried on. In the small intestines it has a fine velvet-like surface, made up of minute thickly-set hair-like processes, or villi, which are about 1/40 of an inch in length, and stand up so that their tops seem to form a smooth surface like the pile of velvet. These, as well as all the rest of the mucous membrane, are protected from the irritation which the immediate contact of foreign substances would produce, by a covering of an inorganic cuticle of extreme delicacy, called epithelium.

The principal functions performed by the intestines are the conversion of the chyme [Digestion; Gastric Juice] into chyle, the absorption of the latter, and the removal of the ininutritious parts of the food and of a considerable quantity of excrementitious matter. In the first process, which constitutes the last stage of digestion, the secretions of the liver and pancreas take an important part; the ducts by which they are conveyed open into the intestinal canal, near the middle of the duodenum, or about six inches from the aperture by which the food passes from the stomach; and immediately beyond the orifices of these ducts the villi are of great size, and thickly set on prominent folds of the mucous membrane, called valvule coinnoventes. These folds, at the same time that they increase the extent of surface for absorption, serve to entangle the semifluid mass of food, now completely digested; they are most numerous and prominent in the jejunum, where absorption of chyle is best carried on earliest and most rapidly, and are found to a slighter extent throughout the whole of the small intestines.

The absorption of the chyle is effected by the villi, each of which is composed of a minute tube, which is the termination of a branch of the lacteal or absorbent system of vessels, and is ensheathed in a delicate tissue containing a net-work of capillary arteries and veins. The form and function of the villi may be best demonstrated in an animal which has died suddenly after a full meal; they then appear turgescent, and stand erect, filled with a whitish milky fluid, the chyle, which, as fast as it is absorbed by them, is conveyed by numerous converging streams into the main trunk of the absorbent system, called the thoracic duct, through which it is gradually poured into the blood of the left subclavian vein, at a short distance before it enters the right side of the heart. [Heart] The whole process of absorption is not unaptly compared to that by which the fluids are conveyed from the earth through the roots into the stem of a plant; the villi of the intestine being represented by the tufts of hair-like spongoles which are placed at the terminations of the fibres of the root.

The portion of the food which is unfit for the nourishment of the body is forced onwards by the vermicular motion of the intestines, and being mixed with the resinosous and other excrementitious substances secreted by the liver and other glands, is conveyed through the whole tract of the intestines; and after it has been exposed to the absorbing vessels, which are placed in greater or less abundance in every part of the canal, so that not a particle of nutrient can be lost, the residue is voided.

INTONATION, in vocal music, is the tuning of the voice—the singing true or false—in tune or out of tune. Correct Intonation is the first requisite in a singer; this wanting, all his other musical qualities, however good, are unavailing.

INTRA'DOS and EXTRA'DOS, the lower and higher curves of an arch. [Arch.]

INTRICA'RIA, a small Polyphore from theolly rocks of France, allied to Cellaria. (M. Defrance, Dic. des Sci. Nat.)

INTUITION (intuit) is the simplest act of the reason or intellect, on which, according to Locke, 'depends all the certainty and evidence of all our knowledge; which certainty every one finds to be so great, that he cannot


INULIN, a peculiar vegetable substance which is spontaneously deposited from a decoction of the roots of the *Inula helenium*. It is a white powder, like to sand, is insoluble in cold and soluble in hot water, from which it is deposited on cooling, and this distinguishes it from starch. With iodine it gives a greenish-yellow compound, which is not hereditarily hereditary. Inulin is also converted from gum, by its insolubility in cold water, and by not giving casessiculate and neither when digested in nitric acid.

INVARIBLE (Mathematics), the same word in meaning as Constant, which see. There are however two sorts of constant in geometry. The first, which we may call a constant, or a common constant, meaning a quantity which is absolutely invariable; the second meaning a function which may vary, but which does not vary in the processes required by a particular theorem. This last is termed the invariable function of that equation, or its invariable.

Thus, in a common differential equation, which is supposed to be true of $y$ and $x$ when $x$ passes through all stages of magnitude whatsoever, the only invariable is absolute invariable, or a constant common. But in an equation of differences, in which $x$ only passes from one whole number to another, the invariable function is any one which remains unaltered by changing $x$ from one whole number to another. Thus, instead of saying that the solution of $\Delta y = x + 1$ is $\Delta(x^2 + x) + C$, where $C$ is a constant, we may allow $C$ to be any function of $x$, which is not altered by changing $x$ from one whole number to another. Such a function is not constant, but $x$ is so.

Again, suppose it required to solve the functional equation $\phi(x^2) = 2x$. One solution of this is $\phi = x \log x$, but another is $\phi = x \log x - x + k$, where $k$ is any constant whatever. For, if $x$ be a function of $x$, provided it be one which does not change when $x$ is changed into $x^2$. Such a function is

$$\cos \left(2x - \frac{\log x}{\log 2} \right)$$

or $\phi = x$ any function of $\cos \left(2x - \frac{\log x}{\log 2} \right) \times \log x$.

General methods of finding invariable functions, as far as they have not yet been given, will be found in the 'Encyclopedia Metropolitana,' article 'Caleculus of Functions.'

INVENTION. This term, when used in the language of art, has a different signification from what it usually bears in common language. It does not mean discovery, but invention, or the process by which the mind takes cognizance of a subject to be represented, with the mode of treatment, or choice of objects and manner of disposing them best adapted for producing a desired effect. Thus, in music, in painting and sculpture, it is the faculty by which the most perfect mode of illustration is suggested to the artist, and by which the mind of the spectator is to be comprehended, the truth, the intention, and the whole purpose of the work before him; but so distinct is it at the same time from perfect execution, that it is often found to exist independently of excellence in that particular, some of the finest inventions in art being manifestly defective in technical requirements. It is therefore the highest quality in the constitution of the artist's mind: as Opie Thay, 'Dissertation of invention, a poet is but a plagiary, and a painter a copier of others.' (Lectures on Painting.)

It is hardly necessary to enter into the question whether the power of invention be a primary and original law of the mind, or whether the effect of cultivation. Some have believed it may be a result of acquirement, and canored on till the power be developed and perfected; others conceive that it is unattainable by any human effort, and is part of the original constitution of the mind.

But even admitting invention to be a gift of nature, and not reducible to rule, nor to be taught by any regular process, it still may be improved by study. Whatever natural disposition or original capacity may exist—and it will not, we suppose, be denied that some minds are more bountifully endowed with this gift than others—let man have groundwork and foundation on which and out of which to exercise itself; and even the inventive faculty, which seems to approach nearest to creation, depends upon knowledge, by whatever means acquired, for materials with which to develop and declare itself. Sir Joshua Reynolds.
Raffaelli, by the wonderful ability and power which he has shown in choosing subjects in which the greatest quantity of matter or incident could be introduced, and then in reducing invention, it has afforded the most perfect illustration, in combining all the most striking and affecting circumstances, and filling the spectator's mind with the whole story, by bringing before him, as it were, the past, the present, and even the future, of the region, as he had deserved the greatest master in invention. He was gifted, if any man ever was, with the fullest portion of natural and inherent genius, but he attained his eminence by the most persevering course of exercise and observation, as the necessary and only means through which the inventive faculty could be manifested. He studied nature diligently and profoundly in all her varieties of beauty and expression. Nothing seems to have escaped him; everything that offered itself to his great storehouse was transformed as serviceable to his art, and he acquired such an accumulation of materials, serving as handmaids to his invention, that whatever subject came before him found him prepared, and was immediately dignified with all the expression, truth, propriety, and poetry of genius. He seems to have filled the highestclass, or a perfect illustration, of everything in composition, and to have acquired a knowledge of the finest works of the Greeks, nor, in colour, the magic alliance and breadth of Titian, another master-spirit; and, in whatever he engaged in the beholder, he seems to have produced, to have produced, it is worthy of the highest praise, the most remarkable for the quality we have been considering. Equally admirable, though totally in a different style, the frescoes of Michael Angelo, in the Sistine Chapel at Rome, must be quoted as triumphs of invention, a proud achievement of the human mind. The comprehensiveness of his scheme of illustration, with the greatness and energetic character of his design and composition, render this one of the finest monuments that art has to boast. In viewing the magnificent works of these two masters, namely, of M. A. Buonsirri, and Michael Angelo, it is evident that the loggie and stanza of the same palace (the Vatican), the spectator has a series of examples of as wonderful efforts of inventive genius in historical design as it seems possible to produce. It is not a matter of boasting for them to boast of invention, though the quality of his design, or rather of his forms, was not according to a classical or pure standard. It should be observed here that invention is quite independent of the class of design; its force and power may be displayed in every part of the art, and in subjects of inferior grade, or even in the mode of treating colour, light, and shade. Rembrandt, to proceed with further illustration, is one of those who displayed very high powers of invention, and yet there were few who thought him fit for the first class in whatever relates not to form; and he justly eulogises his "powers of nature" and "the grandeur, paths, and simplicity of his composition." Thus also, though the quality of his art was not of the highest or grand class, the merit of invention is evidently due to our own Hogarth. Opie, in speaking of this artist, alludes in terms of high admiration to a fine example of invention in one of his pictures of the series called "The Rake's Progress." In the bagnio scene he has introduced in the back-ground one of the favourite women of the party setting fire to a map of the World. We have referred only to a very few out of the numerous artists whose works are worthy of attention as examples of invention in every part of the art. There are no fewer than nineteen leading painters, though we might easily multiply them from productions in the sister art. Enough however has been said to point out the nature and value of that high quality in design, and to enable the intelligent observer to recognize and appreciate it when he meets it in the produc-
The public buildings consist of three churches, an Episcopalian church, a court-house, and a tolbooth. The last is a handsome modern building and contains a fine hall. A new central school-house, situated upon the Green of Muirtown, is also a fine building, and comprises a large public hall, with six spacious apartments for the accommodation of the different classes of the inhabitants. In the philosophical society of Inverness is the centre of the custom-house district, which extends from the mouth of the Spey to Dornoch Frith on the east coast, and from Assynt Point to Ardnamurchan on the west. A striking alteration has been late taken place in the town; within fifteen years about 6000 to 10,000 bolls of oatmeal used to be imported annually into Inverness; while now from 4000 to 5000 bolls of oats are exported from its piers.

The foreign annual imports into Inverness are from 400 to 600 tons of hemp, and there are four cargoes of timber for France or Archangel each year. (West-Statistical Account of Scotland.) There is no compulsory assessment for the support of the poor, who are provided for by special quarterly collections, by several charitable mortifications at the disposal of the magistrates, and from other sources. A short account of schools, which are numerous and upon the whole well conducted, is given in the article INVERNESS-SHIRE.

The population of the burgh and parish of Inverness in 1831 was 14,324. The people in Inverness speak a dialect of the English; but they learned it from Cromwell's soldiers. The climate of Inverness is much milder than might be supposed from its northern position in the island. Its mean annual temperature is about 10°. That of the neighbouring isle of Jura is 48°, and that of London 50°. The mean annual quantity of rain which falls at Inverness is about 26-21 inches. This borough unites with Fortrose, Nairn, and Forres in returning one member to parliament.

INVERNESS-SHIRE, a maritime county of Scotland, bounded on the north by Ross-shire, on the south by the shires of Perth and Angus, on the east by those of Nairn, Elgin, Banff, and Aberdeenshire, and on the west by the Atlantic Ocean. The mainland is composed of philosophical strata and 57° 36' N. lat., and between 3° 50' and 5° 50' W. long. from Greenwich. Its greatest length from north-east to south-west is 88 miles, and its greatest width from north-west to south-east nearly 55 miles. According to Mr. M'Culloch, (Statistical Account of the British Empire) the entire county contains 4245 square miles, or 2,716,800 acres, of which the mainland occupies 1,943,920, and its islands 773,880; the former having 84,480, and the latter 37,760 acres of water. It comprehends various districts, particularly those of Inverness on the north-east, where it borders upon Perth and Aberdeenshire; Lochaber on the south adjoining Argyleshire; Glenelg on the north-west bordering upon the ocean; besides many inferior districts, such as Glenmoriston, GLENMORISTON, Glenelg, and the considered portion of the Hebrides, or Western Isles, including the Isles of Skye, Harris, Benbecula, North and South Uist, Barra, &c. [HEBRIDES. This county, which is extremely mountainous, is intersected by innumerable lakes and rivers, and is divided into two nearly equal parts by the deep valley of Glenmore, which runs in a direction from Fort William on the south-west to the town of Inverness on the north-east. This county forms a large part of the Highlands of Scotland, and the general description of its geographical features cannot well be separated from that of the division of the island to which it belongs. [GREAT BRITAIN, p. 402.] By far the greater part of the surface is covered with heather, but a good deal of the hilly ground is arable and a considerable extent of it has been brought into cultivation during the present century. The population in 1831, according to the population returns for that year, was 94,797, of which 45,510 were males, and 49,287 females. The valued rent at the same period was 73,186L. Scotland, but the annual value of real property in 1815 was 185,563L. The county sends one member to parliament. [INVERNESS.]

Geology and Mineralogy.—The prevailing rocks are of the gneiss and grit, having a lightly crystalline structure, and being entirely destitute of organic remains. Gneiss is perhaps the most abundant, but huge masses of granite and of the oldest trap or porphyritic rocks are met with in the Grampians and the mountains of Glencoe and Ben Nevis. The granite is found in proches to the nature of marble, particularly near Ballachulish and in the bed of the river three miles south of Fort William. Sandstone is also frequently met with. The beds of the stratified rocks are usually highly inclined to the vertical, but the dip varies. Their general direction is from south-west to north-east. The two principal mountains are Ben Nevis and Meall-fourouville. The former, which is separated from the Grampian mountains by the Kilmalie, is 5124 feet high, and Rannoch, is composed of porphyrty and granite, and rises 4374 feet above the level of the sea, being the highest mountain in Great Britain. It is easily ascended on the western side, and at about the height of 1500 feet the snows lie throughout the year. The river Spey at its mouth, after passing the sea-level, is composed of a conglomerate rock and stratified sandstone, the latter of which is so hard a texture as to be used for the pavements of the streets of Inverness. Some veins of lead and silver have been discovered in several parts of the county and also iron ore in small quantities, but we are not aware that mines have hitherto been worked to any extent. The soil is for the most part light and sandy, with a subsoil of gravel or clay; but in the neighbourhood of the town of Inverness is a fine loam deposited by the waters of the adjoining frith.

Farms, Estates, and Agriculture.—In 1808 the landed property of this county was divided among 83 proprietors. The value of the land, in the 1821 return, was 113,388L., or from 1000L. to 3000L.; 23 from 400L. to 1000L.; 33 from 100L. to 400L.; and 14 under 100L. From that period to the present time we believe the above distribution has not undergone any material alteration. Formerly there was a great number of small arable farms only a few acres in extent, but these have much decreased since the introduction of sheep farming. What remain of them are usually let from year to year, but the larger farms are divided between servants and proprietors or the heads of farm-houses erected within the last forty years by the wealthier class of store farmers are for the most part well constructed, but the dwellings of the cottagers and poorer tenants are described as being in every respect comfortless and mean. (McCulloch's British Empire, vol. i., p. 319.) The attention of the farmers is chiefly directed to the rearing of sheep and cattle. The sheep are mostly of the Cheviot and Lintorn breeds, and the stock at the present time is estimated at 120,000; the stock of cattle is supposed to be chiefly of the Skye or Kyle breed. In the month of July a fair for the sale of sheep is held annually at the town of Inverness, where, upon an average, 100,000 sheep and as many stones of wool are sold. It also contains a fair for sheep and farm-servants generally live on potatoes with milk, and oats and barley meal prepared in various ways, to which the wealthier tradesmen are able to add fish and butcher's meat. The usual rate of ploughmen's and farm-servants' wages is 1L. in money and six bolls of meal. Some farmers plant as much ground with potatoes as they can manure, and female labour is commonly reckoned at two-thirds of that of men. The fields are frequently enclosed, and within the last twenty years a great deal of waste land has been drained and reclaimed, and much ground planted; but none of any consequence has been irrigated or embanked. The average rent of cultivated ground varies from 1L. to 2L. 10s. the acre, but in the immediate vicinity of the town of Inverness, and in the parishes of Inverness and Cawdor, it is estimated that there are about 14,000 acres covered with wild trees. Those which grow naturally are the oak, fir, birch, ash, mountain ash, holly, and hazel. The hedges have a line structure, and the trees planted are the harch, spruce, silver fir, beechn, plane, and fruit trees. In these forests and the neighbouring mountains the herbs of red and roe-deer roam in safety in recesses almost impenetrable to man. The alpine and common hare is a very common animal in the district, and the red deer is found in the highlands. [Manufactures.—Formerly a good deal of hemp, worsted,
The parochial schools throughout the county did not pretend to an extensive, varied, and increasing, and the reader will find a very accurate description of the state of education for the head of several parishes in the above-cited work.

(Recent Statistical Account of Scotland; Playfair's Description of Scotland; Beauch of Scotland; Society's Map of Scotland; Caledonian Canal, 1803-4: 5-6; Parliamentary Papers, &c.)

INVERSE, INVERSION. Any two operations of algebra are said to be inverse when one of them undoes, so to speak, the effect of the other; so that if both be successively performed upon the same quantity, the quantity itself is that quantity itself. For instance, the operations implied in $1 + x$ and $\sqrt{x - 1}$ are inverse to one another; for

$$1 + \{\sqrt{x - 1}\}^2 = x$$

We need do no more than same addition and subtraction, multiplication and division, raising of powers and extraction of roots, as pairs of inverse operations.

The operation of inversion is the solution of an equation, and vice versa. Let it be required to find the operation inverse to $x$. Assume $\phi x = y$, and find $x$ in terms of $y$; say $x = \psi y$, then $\phi (\psi y) = y$, or $\phi$ and $\phi$ are inverse operations. Thus if $x = 2 - x = x + 1 = \sqrt{x - 1}$, and either of the two, $1 + \sqrt{x - 1}$, is inverse to $x = 2 - x$.

It thus appears that a function may have more than one inverse function, and there are functions which have an infinite number, but there is a distinction by which one may be preferred to the other. Let us write the letters in this article be all functional symbols, or marks of operations to be performed, and let them come before the subject of operation, the quantity $x$, or $\psi$, &c., in the order in which they are to be performed. Thus $a \phi x$ denotes the result of performing the operation $\phi$ upon $x$, and then the operation $\psi$ upon $\phi x$. Now let $\phi x = \psi z$, where $\phi x$ is an unambiguous operation, and $\psi x$ is, generally speaking, ambiguous, or presenting several different forms. Then $\phi$ and $\psi$ are inverse operations, and $\phi \psi x = x$, and we might suppose at first that $x = \phi \psi x$; that is to say, we might imagine that $\psi$ destroys $\phi$ as well as that $\phi$ destroys $\psi$. But since $\phi$ is ambiguous, it may be that only one or more of the forms of $\psi$ will satisfy $x = \phi \psi x$, and not all: and that this will be the ease with one is obvious, while we can show that it cannot happen with more than one. For though the same operation, performed on different functions, may produce the same function, yet different operations, performed on the same function, must produce different functions. If $\phi$ and $\psi$ be different forms of $\psi$, we have $\phi x = x$ and $\psi x = x$, but we cannot have both $\phi \psi x = x$ and $\psi \phi x = x$, where $\alpha$ and $\beta$ are different, $\phi \psi x$ having absolutely the same form and value in both equations.

Now all the inverses of a function $\phi \psi x$, then, we separate that one, $a \phi x$, which gives both $\phi \psi x = x$ and $\phi \phi \psi x = x$, and call it the convertible inverse. Its symbol is $\phi$ or $\phi$; so that $\phi^{-1}$ means that operation which satisfies both the equations $\phi \phi^{-1} = 1 = x$ in $x = \phi \phi^{-1} x$, and $\phi^{-1} \phi = 1 = x$ in $\phi^{-1} \phi x = x$. [Example.]

In the preceding example $1 + \sqrt{x + 1}$ is the convertible inverse of $x = 2 - x$; for $1 + \sqrt{(x - 2) + 1} = 1 + x - 1 = x$. But $1 - \sqrt{x - 2} - x$ gives $1 = (x - 1) = 2 - x$; and we call this an inverse convertible.

Every function which has more than one inverse is not only a function of $x$, but the same function of other functions of $x$. Let $a$ be an invertible function of $x$; then $a \phi x = x$, or $\phi^{-1} x = \phi x = x$, and so $\phi x$ be $x$, so that $\phi x$ is the same function of $x$, which it is of $x$. Thus in the preceding example $x = 2 - x$ is the function of $2 - x$ which it is of $x$; or $x = 2 - x$ is invertible $(2 - x)^{2} - (2 - x) = (2 - x)$.

We have then this theorem; every function has as many different forms as inverses, and all these forms can be made by writing different signs, or symbols, in front of the function, and each inverse of the function is the convertible inverse to one of its forms, and an invertible inverse to all the rest. Thus $1 - \sqrt{x + 1}$, which is the convertible inverse to $x = 2 - x$, is the convertible inverse of $(x - 2)^{2} - (2 - x)$; for

$$1 - \sqrt{(2 - x)^{2} - (2 - x) + 1} = 1 - (2 - x - 1) = x$$

The way to make the convertible inverse of a given func-
The equation \( \phi \phi^{-1} x = x \) being understood, suppose that between the first and second operations we interpose the operation \( \alpha \), so that we have \( \phi \alpha \phi^{-1} x \). This is no longer equal to \( x \), but it is a function, the properties of which are closely connected with those of \( \alpha x \). For instance, if \( \alpha x \) and \( \beta x \) be inverse to each other, then \( \phi \alpha \phi^{-1} x \) and \( \phi \beta \phi^{-1} x \) are also inverse to each other: for \( \beta x = x \alpha \) and \( \phi \alpha \phi^{-1} x = \phi \beta \phi^{-1} x \), or \( \phi \beta \phi^{-1} x \) is an inverse of \( \phi \alpha \phi^{-1} x \). Thus knowing \( x + 1 \) and \( x - 1 \) to be inverse functions, we know immediately that log \( x(x + 1) \) and log \( x(x - 1) \) are inverse functions; and also \( x(x^2 + 1) \) and \( \sqrt{x^2 - 1} \).

For more detail on this subject see the article ‘Calculus of Functions,’ in the ‘Encyclopedia Metropolitana.’

INVERSION, in Music, is a change in the relative position of two sounds, or of the several notes of a chord. Thus \( c \) and \( d \) of an interval of a 2nd, becomes by inversion \( c \) and \( a \) a 7th.

And \( a \) and \( g \), the notes of the triad, or perfect chord, by inversion become the chord of the 6th \( (a c g) \), or of the 4th \((g c a)\).

For other musical Inversions, see Canon and Figur.

INVOLVULARUM, in botany, is any collection of bracts round a cluster of flowers. In umbelliferous plants it consists of separate narrow bracts placed in a single whorl; in many composite plants these organs are imbricated in several rows. If the bracts belong to a secondary series of the inflorescence, as in the partial umbels of an apiceaceous plant, or in the solitary florets of Echinops, they form an involucrum. The most singular state of the involucrum is that which is found in the genera Canadana, Echinotheca, Quercus, where it forms a cup, or closed cover, remarkable in the European species of those genera, but much more so in the species of India.

INVOLUTE AND EVOLUTE (the curve unrolled and the curve from which it is unrolled), a name given to two curves so formed and placed, that supposing the second to be cut out from solid matter, the first can be formed by fastening one end of a thread upon a point in the second, attaching a pencil to the other end, and moving the pencil so that the thread may either gradually envelop or be unwrapped from the curve to which it is fastened. Thus the pencil in the diagram is describing the involute of a circle, or the curve of which the circle is the evolute. But the evolute of a circle is evidently a point.

The following figure represents an ellipse with its evolute.
Whenever the two arcs adjacent to a normal (or perpendicular to the tangent) of the involute are equal and similar, there is a cusp in the evolute; and the evolute generally recedes without limit as we approach a point of contrary direction in the involute.

The mathematical method of finding the evolute is as follows. Let \( y = f(x) \) be the equation of the involute, and let \( X, Y \) be the co-ordinates of the point on the evolute corresponding to that on the involute whose co-ordinates are \( x \) and \( y \). Form the three equations—

\[
y = \frac{dy}{dx} x + y = 0; \\
X - x + \frac{dy}{dx} (Y - y) = 0; \\
1 + \frac{dy}{dx} \frac{dy}{dx} (Y - y) = 0;
\]

and from them eliminate \( x \) and \( y \). The resulting equation between \( X \) and \( Y \) is that of the evolute. But if the evolute be given, and the involute to be determined, let \( X = \frac{Y}{x} \) be the equation of the former, and from this and the latter two of the preceding three equations eliminate \( X \) and \( Y \).

There will result a differential equation of the second order between \( y \) and \( x \), the primitive of which is the equation of their involute, the two arbitrary constants being determined by the point at which the thread is supposed to be fixed and the length of the thread.

Thus if the curve be a parabola having the equation \( y = x^2 \), the equations for determining the evolute are—

\[
y = \frac{dy}{dx} x + y = 0; \\
X - x + \frac{dy}{dx} (Y - y) = 0; \\
1 + \frac{dy}{dx} \frac{dy}{dx} (Y - y) = 0;
\]

from which we find—

\[
X = \frac{1}{2} x^2 + \frac{3}{2} x^2;
\]

which give \( Y = \frac{1}{2} x^2 + \frac{3}{2} x^2 \),

the equation of the evolute of the parabola, which evolute therefore appears to be what is called a semi-cubical parabola.

For considerations similar to those which precede see Caustics.

INVOLUTION and EVOLUTION. (Arithmetic.)

Taking these words in their etymological sense, they might stand for the greater part of mathematical analysis. In their technical algebraical sense, they mean only the raising of powers, and the inverse operation, the extraction of roots. The revival however of a general process, accompanied by an improvement which makes it comparatively easy, renders it necessary to make a more extensive definition of the terms. We shall not relinquish any characteristic of the old meanings, and shall bring all corresponding processes together, by laying down the following definition:—Involution is the performance of any number of successive multiplications of the same multiplier, interrupted or not by additions or subtractions; and evolution is any method of finding out, from the result of an involution, what multiplier was employed, provided that the said method proceeds by involutions. Thus to determine \( 2^x + 3^x + 5^x + 10^x \) by involution, we multiply \( 2 \) by \( x \), and add 4; then multiply by \( x \) and subtract 3, then multiply by \( x \) and add 10. If this give 1000, then any method of determining \( x \) which proceeds by successive involutions is evolution.

A few years ago our only instances of evolution would have been common division, and the extraction of the square and cube roots, with references to Vieta, Harriot, Oughtred, and the older algebraists in general, for evolutionary methods of solving equations, bearing a strong likeness to such extractions. For a more detailed account than we can here give, the reader is referred to the paper just cited, which is reprinted in the 'Ladies' Diary' for 1838, or to "The Theory and Solution of Algebraical Equations," by Professor Young of Belfast (London, J. Souter, 1835).

We should begin with simple involution, and the extraction of the square and cube roots, if we were writing an elementary treatise. But taking it for granted that the reader is familiar with the first two, at least, we shall proceed to describe the general process. This consists of three distinct parts, the first two of which have been long known, and kept the third, which contains the peculiar distinction of the method, is due to Mr. Horner.

1. In the article "Approximation" it is shown that if \( \phi(x) \) is a value of \( x \) which makes \( \phi(x) \) very small, then \( \phi(x) \), and \( \phi(x)^2 \), will be a made to a value of \( x \) which makes \( \phi(x) \) absolutely, \( = 0 \). Here \( \phi = \phi(x) \) means the differential coefficient of derived function and if

\[
\phi(x) = A x^2 + B x + C \Rightarrow (n+1) = B x^2 + (n-2) C x^2 + \ldots; \]

then

\[
\phi(x) = n A x^2 + (n-1) B x^2 + (n-2) C x^2 + \ldots.
\]

2. Meaning by a root of \( \phi(x) \), any value of \( x \) which makes \( \phi(x) = 0 \), it is obvious that \( \phi(x) \) is a function which has its roots the roots of \( \phi(x) \), each diminished by \( x \). And the substitution of \( x \) for \( x \) instead of \( x \) in the preceding value of \( \phi(x) \) gives a well known development, of which an instance will be more to our present purpose. Let the function be

\[
A x^2 + B x + C + D x^2 + E + F ; \ldots (1).
\]

Write \( x + \alpha \) for \( x \), and this becomes

\[
A x^2 + (A + B) x + (A + B + C) \Rightarrow (n+1) = B x^2 + (n-2) C x^2 + \ldots;
\]

which we may represent by

\[
A x^2 + (A + B) x + (A + B + C) + (A + B + C + D) + \ldots \]

The quantities \( \phi(a), \phi(b), \phi(c), \ldots \) may be determined by a succession of involutions, each making use of the results of the preceding. Find \( \phi(x) \) by involution, of which the following are the steps—

A

\[
A + B + \alpha; \quad A + B + \alpha + C; \quad A + B + \alpha + C + D;
\]

which gives \( \alpha = \phi(b) \), and finally \( \phi(a), \phi(b), \ldots \) are determined by

A

\[
A + B + \alpha; \quad A + B + \alpha + C; \quad A + B + \alpha + C + D + \ldots \]

A repetition of the process, leaving out the last, gives \( \phi(x) \), as follows—

A

\[
A + B; \quad A + B + C; \quad A + B + C + D + \ldots \]

A repetition gives \( \phi(a), \phi(b), \ldots \), and finally \( \phi(x) \), as follows—

A

\[
A + B; \quad A + B + \alpha; \quad A + B + \alpha + C + D + \ldots \]

In numerical applications the operations may be made to stand thus, where a new letter below a line stands for the sum of the two preceding ; and \( \phi(a), \phi(b), \ldots \) are introduced when found.

If \( x \) be a of only one significant figure (as 200, 6, 63), all the operations necessary to fill up this process can be performed in the head, and we have thus (for the method is general), though our example be only of the fifth degree) a working

* Mr. W. G. Hornor was a schoolmaster and mathematical teacher residing at Bath, and died September 29, 1837. His works are unnoticed as in preparation for the press, under the superintendence of Professor Hayes, of the Royal Military Academy.

There has been some dispute about the right to the invention, of which we do not here speak in detail, as we have no doubt it will be extremely evident to all who examine the question that Mr. Horner is the first author and publisher (and, we believe, the only one) of that particular part of the method which goes beyond Vieta and his successors. (See "Companion to the Allman" for 1838.)
INV

If answering the following question:—Given a certain equation \( \phi = 0 \); required the equation \( \phi' = 0 \), the roots of which are each less by \( a \) than those of \( \phi = 0 \).

If \( \phi \) came out \( = 0 \), we should then know that \( a \) is a root of the equation: and the method of approximating to a root is as follows:—Suppose we have an equation of which the root (unknown to us) is 20 73. By trial, or otherwise, suppose we find that 20 is the highest denomination of the root, and we thereupon find another equation, each of whose roots is less by 20 than a root of the given equation: this is done by the preceding process, and one of the new roots (unknown) is 673. If we can find that the highest denomination of this root is 6, we make another reduction of all the roots, and find a new equation, one of whose roots is 73. If we can then find 7 to be the highest denomination, we repeat the process and find an equation one of whose roots is 03. In finding the highest denomination of this root we find the root itself, evidenced by the \( 2 \phi \) of the first process being \( = 0 \).

The first denomination of the root must be found by trial, or by some of the methods referred to in THEORY OF EQUATIONS.

But the second and the remaining ones are found by comparing the results \( \phi \) and \( \phi'a \). If \( a \) be nearly a root,

\[
\begin{aligned}
& - \frac{\phi}{\phi' a} a + \frac{\phi}{\phi' a}
\end{aligned}
\]

is still nearer. Consequently, by dividing \( \phi \) by \( \phi' a \), we may, after the second process, be sure of finding one figure of the remaining root correct. But after the first process we may be liable to an error of a unit (to be corrected by a new trial), as in extraction of the square root.

In order to obtain \( \phi \) and not \( \phi' a \), let the last coefficient \( F \) be changed, and let the process in the column which contains it always be subtraction, and not addition. In the preceding type of calculation, we should then have

\[
- F F
\]

Subtr. \( - \phi' a \phi \) Add.

In carrying on the process, the results \( \phi, \phi' a, \&c. \) come in a diagonal line; before taking the next step, the beginner should bring them down into one line, as in the type preceding. In our examples, asterisks or other symbols will mark results of a process.

We now apply this method to the solution of the equation

\[
x^2 + 2x^3 + x^4 - x^5 - 36104798 = 0
\]

It will be found that a root lies between 100 and 200.

<table>
<thead>
<tr>
<th></th>
<th>10</th>
<th>100</th>
<th>1000</th>
<th>10000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>-1</td>
<td>-1</td>
<td>15879</td>
</tr>
</tbody>
</table>

Assuming 100 as a first approximation, we find that \( x^2 + 402x^3 + 60599x^4 + 409792x^5 - 52907489x^6 = 0 \) is an equation having roots less by 100 than those of the given equation. And 52907494 contains 4097929 up to 130 times; but if any number of tens greater than 50 be taken, the accumulations of the next involution will give more than 55000, &c., as must be found by trial. Repeating the process, we find that \( x^2 + 602x^3 + 135992x^4 + 1363499x^5 - 11085744x^6 = 0 \) is an equation all whose roots are less by 50 than those of the last. We can now depend upon 11085744 giving one figure of the root, and the quotient is between 8 and 9. Assuming 8, the first step of the third process shows that 8 is a root of the last equation, and 35 of the preceding, and 138 of the given equation.

We now give an example in which approximation is carried on. Let the equation be \( x^2 - 6x^3 + 7x + 4 = 0 \), of which one root lies between 2 and 3. The first working column is abbreviated.

\[
\begin{array}{|c|c|c|}
\hline
1 & 2 & 3 \\
\hline
2 & -6 & -3 \\
3 & 1 & 3 \\
4 & -1 & 1 \\
5 & 1 & 2 \\
6 & 1 & 3 \\
\hline
\end{array}
\]

The root of this equation is found to be 2 14123562, as follows. Beginning with the multiplier 2, one set of involutions brings us to the figures followed by colonas, and \( x^2 + x^3 + x^4 + x^5 \) is an equation on which the process is to be repeated. Dividing \( -2 \) by \( 2 \) we find that \( 4 \) is probably the next figure, which is verified in the next trial, since the result of involutions, 1936, is less than \( 2 \). We proceed in this way until 2 4 1, containing half the number of figures wanted, is found, and this being \( a \), we have found \(-9 \times 000068313 \) for \( \phi'a \), and \(-4 \times 485316 \) for \( \phi' a \).

The first divided by the second may be depended upon for doubling the number of figures, as commonly practiced in the extraction of the square root. [APPRAISE.] The figures 13562 are found by a contracted division shown in the example.

But it is more convenient to avoid decimals in the process, which may be done as follows: 1. If there be decimals in the coefficients of the equation, annex figures to every place in such manner that the number of decimals in the several places may be in increasing arithmetical progression. Then strike out the decimal points entirely, and proceed as with whole numbers, remembering that the root thus obtained will be 10 times too great if the increment increases by units. 100 times too great if it increase by twos, and so on.

Thus \( 1812.76 - 1812.76 + 1812 \) should be changed into \( 1182.76 - 300.00 + 4.55 \), which will give ten times the required root.

2. When all the whole figures of the root have been obtained, and the decimal part is about to enter the calculation, before attempting to obtain the first decimal figure annex a cipher to the first working column on the left, two ciphers to the second, and so on to the end. Then proceed with the new number, as if it were a whole number, and make a new involution. When this is finished annex ciphers again as before. One additional advantage will be that the ciphers will serve to mark the places of completion of the individual involutions. If in any case \( \phi' a \) should not contain \( \phi' a \) place a cipher in the root, annex ciphers again, and then proceed. In some of the older algebraists, Ough-

TREED for instance, the several vertical lines of figures are kept in their places by a set of ruled columns, the use of which is difficult. Mr. Horner has a similar contrivance; but the employment of ciphers removes all the difficulty, as in common division and the extraction of the square root.

See the last example in this article. The method might easily be extended to the whole part of the root.

The following is an instance of the method:

\[
x^2 + x^3 - 2x^2 - 2x = 0
\]
Many of the preceding figures are useless, but we kept it best to present the whole process. The name method of abbreviation is to fix a point of the process begun and after which the number of figures in the last column is not to increase, striking off at every step one figure from the last column but one, two from the last but two, and so on. The consequence will be that the several columns on the right will disappear one after the other; the process will be legitimately reduced to termination with a contracted division, independently of the theorem cited; and the result will be true to the last place. The effect of this will be, that as soon as the remaining part of the root is too small for its highest power to show itself in the process, an equation of the $(n-1)$th degree takes the place of the nth, and so on, until there remains only an equation of the first degree, and the approximations then proceed by the Newtonian method. All this was pointed out by Mr. Horner, whose view of his own method was very complete, in everything but historical information. Had he given in his paper an example from Oughtred's, also worked by his own method, pointing out the difference of the two, we feel sure that the question about the right to the invention never would have been discussed.

Taking up the preceding example at the point with which we left off (neglecting the division), and following the process, we have

\[
\begin{array}{c|c|c|c}
\text{Dividend} & 414 & 11 & 367 \\
\hline 
\text{Divisor} & 10 & 1 & 0 \\
\hline 
\text{Quotient} & 41 & 4 & 7 \\
\end{array}
\]

\[
\text{Remainder} = 0
\]

The answer 1:414213562373 is correct to the last place inclusive. (The contracted division follows the thick line.) The rule by which to judge of the extent to which the full process should be continued is as follows: Carry it on until the last column but one has at least two more figures than the number of root figures remaining to be found.

Such is the method which must place its author among those valuable inventors who find out simple adaptations which have been overlooked by their predecessors. It is not a little remarkable that this, the most important facilitation which the solution of numerical equations has received since the time of Vieta, and which is, when known, a very obvious extension of the extraction of roots, should have only preceded by a few years the most important addition to the method of ascertaining the number of roots which has been made since Descartes, and which is also, when known, an equally simple result of the process of finding the highest common factor of two algebraical expressions. [STURM'S THEOREM.]

Two of the most remarkable applications of this method are, the solution of equations of the second degree, which is made as simple as the extraction of the square root, and the extraction of the cube root, which is reduced from an impracticably complicated process to one of perfectly easy performance.

P. C., No. 789.
In the extraction of roots the method of pointing and bringing down the periods as they are wanted may be followed. The following is the process for the extraction of the cube root of 206592449327: it being remembered that the question is the solution of an equation of the form $x^3 + 0x^2 + 0x = a$.

\[
\begin{array}{l|cccc|c}
  \text{1} & \text{2} & \text{4} & \text{6} & \text{8} & \text{10} \\
  \text{60} & \text{63} & \text{66} & \text{69} & \text{110} & \text{113} \\
  \text{662} & \text{692} & \text{722} & \text{752} & \text{782} & \text{812} \\
  \text{842} & \text{872} & \text{902} & \text{932} & \text{962} & \text{992} \\
  \text{1022} & \text{1052} & \text{1082} & \text{1112} & \text{1142} & \text{1172} \\
\end{array}
\]

The opposite process is the extraction of the cube root of 1808, and will serve as an example of the complete process, omitting only the first column, which, with the exception of the unit at the head, is blank. And this is also the type of the solution of any cubic equation whatsoever; the only difference being that the heads of the first and second working columns are ciphers in the extraction of the simple root, and significant in all other cases.

The preparation for decimals makes the answer ten times too great; so that the cube root of 1808 is 121.8...002, of which only the last figure 2 cannot be depended upon. The preceding contains every figure which need be written down, all the connecting operations being those which are usually performed mentally, and one only is required for each figure. We do not think that any attempt to shorten the work, by leaving out the recurring figures, or employing double mental operations, would save time; and it would certainly very much augment the liability to error. The vertical lines in the example show that part of the operation in which the contraction takes place, and the point at which the contraction becomes simple contracted division is marked by a thick horizontal line. To enable the beginner to examine the process we have placed a letter in every line of the first working column, by which the parts of the second column which are connected with it may be traced; while a letter doubled in the second column shows a multiplicand, the product of which by the root figure is found as marked in the third column. The letters under the last line of the first column mark the figures cut off in the several contractions, and their results in the other columns are traced in the same way: the same for the letters under the second column.

One simplification might be made after the learner has practised a number of examples conducted as above. In the second working column certain lines, namely, the second, the second $e$, the second $h$, the second $k$, $a$, $c$, are not used except as to be added to the next line. Hence each of the lines on which a letter is doubled might be formed by adding the first, third, and fourth preceding lines, and the effect would be to omit some of the lines and some of the most simple additions. The second column, beginning from $p$ inclusive, as a specimen, and changing the line in which ciphers are annexed (and the ciphers should always be annexed to mark the step) would be

\[
\begin{array}{l}
  \text{1} & \text{2} & \text{4} & \text{6} & \text{8} & \text{10} \\
  \text{10} & \text{12} & \text{14} & \text{16} & \text{18} & \text{20} \\
  \text{22} & \text{24} & \text{26} & \text{28} & \text{30} & \text{32} \\
  \text{34} & \text{36} & \text{38} & \text{40} & \text{42} & \text{44} \\
  \text{46} & \text{48} & \text{50} & \text{52} & \text{54} & \text{56} \\
  \text{58} & \text{60} & \text{62} & \text{64} & \text{66} & \text{68} \\
  \text{70} & \text{72} & \text{74} & \text{76} & \text{78} & \text{80} \\
  \text{82} & \text{84} & \text{86} & \text{88} & \text{90} & \text{92} \\
  \text{94} & \text{96} & \text{98} & \text{100} & \text{102} & \text{104} \\
\end{array}
\]

But considering that the process is one which no person will very often perform, we doubt whether to recommend even this abridgment. All such simplifications tend to make the computer lose sight of the uniformity of method which runs through the whole; and we have always found them, in rules which only occur now and then, afford greater assistance in forgetting the method than in abbreviating it.

On evolution of algebraical quantities we do not think it necessary to speak, since either the binomial theorem [Binomial Theorem], or some other method of development, is employed with more advantage than the usual modification of the arithmetical process. We have also omitted the process of division, the most simple of all evolutions, since its connection with the preceding is sufficiently obvious. There is however a process of an evolutionary character which we take this opportunity of suggesting, and of which any one moderately conversant with algebra will easily arrive at the demonstration. In finding the highest common divisor of two algebraical integral expressions, and also in the process of Sturm's Theorem, it is required to divide one ex-
The method of proof of the several processes, results arise, as follows: Make an additional table, as shown in the following form,<html><head><math>\begin{array}{cccccc}
7 & 8 & 9 & 10 & 11 & 12 \\
0 & 1 & 2 & 3 & 4 & 5 \\
A & B & C & D & E & F \\
G & H & I & J & K & L \\
M & N & O & P & Q & R \\
S & T & U & V & W & X \\
Y & Z & a & b & c & d \\
\end{array}
\end{math}</html>

The remainders therefore, with the signs changed as directed, are 43x² + 45, 151362x - 1964, and the last is a negative whole number. The following is the first instance of the use of the proof column:

\[ 1 \times 1 \times 4 \times 4 \times (-6) = (-16) = 8 \times 2 (4 \times 1) \]

**IODINE**, a non-metallic element or simple solid body, which was discovered by M. Courtois, of Paris, in 1812. Its peculiar properties were however first ascertained by Gay-Lussac and Davy. Iodine exists in the water of the ocean and mineral springs, probably combined with sodium, in marine molluscs and sea- weeds; it has also been met with in combination with silver. Iodine is principally obtained from *halohip*, or sea- weed which has been burnt for the purpose of obtaining alkali from it. When the alkali and other salts have been separated, the residual solution is treated with sulphuric acid and binoxide of manganese, by which the iodine is set free, the decomposition being analogous to that by which chlorine is obtained by the same agency from common salt.

Iodine is a soft opaque solid, of a bluish-black colour and metallic lustre. The primary form of the crystal is a right rhombic prism, and the crystals are usually flat. According to Gay-Lussac, its specific gravity is 4.948. When moderately heated, it rises in vapour of a violet colour, and hence its name from the Greek. On cooling, it again crystallizes unchanged, nor is it decomposed or altered by being subjected to very high temperatures, and it has resisted all attempts to decompose it. Iodine has a strong disagreeable odour and taste resembling those of bromine and chlorine; it stains the skin of a brownish colour, but not permanently. It is readily dissolved by alcohol; the solution is of a reddish-brown colour, but so little is taken up by water that a pound of water will not dissolve more than a grain of it. It is very poisonous. Its characteristic property is that of giving an intense blue colour when added to a solution of starch. It unites with metals to form compounds, which are termed *iodides*, and, like chlorine and bromine, it forms acids both with hydrogen and oxygen.

**Oxygen and Iodine** combine to form probably four compounds; the first is oxide of iodine. When the vapour of iodine and oxygen are mixed at rather a high temperature, the violet tint of the iodine disappears, and a yellow soft substance is formed, which is regarded by Sementini as oxide of iodine; if this be subjected to the action of more oxygen gas, it is converted into a yellow liquid, which the same chemist supposes to be iodous acid; but the composition and properties of these compounds have not been accurately determined.
This compound was first obtained by Davy in a reaction of iodine upon what he called eutecturium gas. The latter process has however been proposed by Mr. Connell, which consists in heating the iodine in the strongest nitric acid. For this purpose the acid should be introduced with about a fifth of its weight of iodine into a tube about an inch wide and 13 inches long; and sealed at one end, and the materials are to be kept boiling for 12 hours; the iodine which rises and condenses on the sides of the tube is to be returned to the acid either by a glass tube or by agitation; when the iodine distilled in excess of nitric acid is to be got rid of by evaporation. Iodic acid is a white semitransparent solid substance, which is inodorous, but has an astringent sour taste. It is so dense as to sink in sulphuric acid, and it deliquesces in a moist atmosphere. It is very soluble in water; the solution reddens vegetable blue color; it detones when mixed and heated with charcoal, sugar, and sulphur. It combines with metallic oxides to form salts, which are termed iodates, and these, like the chlorates, yield oxygen when heated, and an iodide remains.

Iodic acid is composed of 

\[ \text{Five equivalents of oxygen} \times 8 = 40 \]

One equivalent of iodine 126

Equivalent 166

Oxiodic or Periodic Acid.—When chlorine is added to saturation to a solution of iodate of soda with excess of the alkali and concentrated by evaporation, a sparingly soluble white salt is obtained, which is called iodate of soda; when this is dissolved in dilute nitric acid and mixed with nitrate of silver, a yellow precipitate falls, which, dissolved in hot nitric acid and evaporated, yields orange-coloured crystals of oxiodate of silver; these are decomposed by cold water, and the only products of combination of pure oxiodic acid is formed; this by cautious evaporation yields hydrated crystals, and these, when heated to 212°, are resolved into oxygen and iodic acid. It consists of

\[ \text{Seven equivalents of oxygen} \times 7 = 56 \]

One equivalent of iodine 126

Equivalent 182

Azote and Iodine form iodide of azote. This compound cannot be obtained by direct action, on account of the weakness of the affinity existing between its elements. It is prepared by putting iodine into an aqueous solution of ammonia, which being decomposed, its hydrogen forms hydriodic acid with one portion of the iodine, whilst the azote combining with another portion of it, the result is iodide, or, correctly speaking, azidotriode of azote, which remains insoluble in the state of a brown powder. This compound is very explosive, especially when dry: the best method of exhibiting its power is that of allowing it to dry in small papers, on a liblebulous paper, and then simply letting it fall on the ground or merely touching it, it detonates with a sharp noise, heat and light being emitted, and the vapour of iodine and azote gas are evolved. It is not dangerously explosive. It is composed of

\[ \text{One equivalent of azote} \times 14 \]

Three equivalents of iodine 126 \times 3 = 378

Equivalent 392

Hydrogen and Iodine form hydriodic acid, which may be prepared by the direct combination of its elements. When a mixture of iodine in vapour and hydrogen gas is passed through a red-hot porcelain tube, they combine to form this acid. It is however much more conveniently formed in a retort one of about 12 parts of iodine moistened with water; by the mutual action of these substances the water is decomposed, its oxygen combines with the phosphorus, forming phosphoric acid, while the hydriodic unites with the iodine to form hydriodic acid, which passes over in the state of a colourless gas. This acid has a sour taste, reddens vegetable blue, and when mixed with atmospheric air forms dense white fumes with its moisture: its odour resembles that of the carbonic acid gas. It is soluble in water. The salts which it forms are termed hydriodates; but when it is acted upon by metals, hydrogen is evolved, and when by metallic oxides, water is formed, and in both cases iodides are precipitated.

It is decomposed by oxygen when they are heated together; water is formed, and iodine evolved. It is also immediately decomposed by chlorine, which unites with its hydrogen to form hydrochloric acid, and iodine is set free. It is composed of

One equivalent of hydrogen 1
One equivalent of iodine 126

Equivalent 127

One volume of it consists of half a volume of hydrogen gas and half a volume of the vapour of iodine. Chlorine and Iodine appear to form three chlorides. The protoclour may be obtained by passing a current of chlorine through a vessel in which chlorine is suspended; a deep reddish solution is formed, which yields irritating fumes possessing the smell of both the elements; it first reddens and then bleaches litmus paper. The terchloride may be formed by repeatedly distilling the protoclour. These compounds are composed by gases, which are quite soluble in hydrochloric and iodic acids. The opinions of chemists with respect to these compounds are yet somewhat at variance.

Sulphur and Iodine is formed by heating gently a mixture of 1 part of sulphur and 4 parts of iodine. The product is of a dark colour, and has a radiated structure; it is easily decomposed by heat.

Iodine and Phosphorus combine readily without the application of heat; and so much heat is evolved by their action that the phosphorus takes fire if the experiment be made in the open air; but in close vessels no light appears. The composition of iodides of phosphorus is rather uncertain; that which is probably a protiodide is formed with one part of phosphorus and seven or eight parts of iodine; it has an orange colour, fuses at 219°, and when heated sublimes without changing; it is decomposed by and decomposes water, forming with its elements hydriodic and phosphoric acids. Phosphorous iodide is set free. It is probably composed of

One equivalent of iodine 126
One equivalent of phosphorus 16

Equivalent 142

The sesquiiodide is formed by the action of 1 part of phosphorus and 12 parts of iodine. It is a dark grey crystalline mass, which fuses at 84°, and with water yields hydriodic and phosphoric acids. It is composed of 

One and a half equivalent of iodine 189
One equivalent of phosphorus 16

Equivalent 205

The periodide is prepared with 1 part of phosphorus and 20 of iodine; it is a black compound, fusible at 114°. By the action of water it yields hydriodic and phosphoric acids, and hence it is inferred to consist of

Two and a half equivalents of iodine 315
One equivalent of phosphorus 16

Equivalent 331

Iodine and Carbon unite to form two compounds, but not by direct action. They are not important, and their composition has not been ascertained.

The compounds of iodine and metals are mentioned under each metal.

IODINE, Medicinal Properties of. Iodine, though only obtained in an isolated state of late years, has been long employed as the efficient principle of other preparations and therapeutic agents, namely, burnt sponge and certain mineral waters. It is only since it has been procured as a distinct principle that its action has been ascertained with precision. In the preparatory state of phosphorus, the simplest artificial compound than as pure iodine, owing to its very sparing solubility in water. Iodine in substance, however, when applied to the skin, stains it brown, and even the very small quantity which can be dissolved in water is sufficient to cause rubefaction, and in the form of baths produces decided action both on the surface of the body and the general system. When applied to ulcers or any breach of the skin, it occasions heat and a sense of prickling and tingling; it is also absorbed, and may be excreted in the urine; and the secretions of the patient. Taken internally, even in small doses, it causes a sense of heat in the mouth and throat; if much diluted by the vehicle in which it is given, and the stomach be healthy, it appears to more than increase the digestive powers; but in large and strong doses it creates great heat in the region of the stomach, which becomes sensible to pressure, with a feeling of
weight, heartburn, and often nausea and vomiting. In very large doses it acts as an irritant poison. It is not merely an irritant poison when taken in a large dose, but is a slow or accumulative poison, even when taken in medical doses for a length of time. It has been generally represented as causing emaciation even to a frightful extent; but though this has occurred in some instances, it does not seem to be frequent, if we except the absorption of certain grains especially the grains of females.

...diseases in which it has been found useful are glandular swellings, especially bronchocoele or gout, which rarely resists its action; in some monstrous diseases, in chro- nomenia, and also as an antiseptic against infection with stricture, bracia, and verteria: but its claims to con- fidence are not clear in case of such formidable poisons. It is often of use in lessening the injurious effects of mercury and in the treatment of the sequelae of syphilis. (See Lugol, p. 172.)

IONA, also known by the names of Icolm-Kill and Hi or I, is one of the Hebrides, in the district of Mull, and belonging to the shire of Argyll. It is situated on the western side of the Isle of Mull, from which it is separated by a narrow channel called the "Sound of I." Its length is three miles, and at its widest part it is about one mile in breadth. The general aspect of the country is rugged and mountainous, and the surface for the most part consists of scree. The coast occasionally varied by a patch of green pasture. The settlement on the island is inhabited by a population of about 430 people. There seems to be no doubt that the island was originally inhabited by Druids, who were expelled by the Christians about the time of Mary of France, and that the inhabitants still point out the spot where this holy man is tradi- tionally said to have been interred. The religious institu- tions established by the Christians remained un molested for nearly 500 years; but about the beginning of the ninth century the Danes made their appearance, and with their accustomed barbarity, put to death the greater part of the monks, forcing the remainder to seek safety in flight. At the dissolution of the monastic institutions the Gelons were interred to the sea of Argyle, and upon the abolition of episcopacy they became disintegrated property of the duke. At the present time the island is chiefly interested in account of its numerous architectural and other antiquities, for a full account of which we must refer the reader to Dr. Macleoch's "Highlands and Western Isles of Scot- land." The cathedral or abbey church is surmounted by a lofty tower, which is supported by four arches adorned with figures in baso relievo. The choir is handsome, and the large eastern window is a beautiful specimen of the Gothic style. The church and the cathedral are, however, much injured by time. In the fore court are two finely cut crosses; one called St. Martin's is formed of a single piece of red granite, 14 feet in length. The cathedral itself is dedicated to St. Mary, and, according to Boethius, was built by the Pope about the year 565. Dr. Macle- ooch thinks this at least seven centuries too soon.

...large, cover all the lower part of the body, and form a species of receptacle for the eggs.

Habits.—This parasite hides itself under the shell of Cal- canoser subterranea (Callianassa), and there forms a tumor on one of its sides. Montagu extracted it, and kept it alive for some days. The females are always accompagné by their males, which are very inferior in size, and fix them- selves firmly upon the abdominal appendages of the former by means of their claws. Latreille, whose account we have given, speaks of it as rare, and remarks that in its habits it approaches to Bopyurus. (Isopoda.)

...selves, and not only considered as one single event: there seem to have been many and various migrations of Ionians, some of which were probably anterior to the Do- rian conquest. Thus the Ionians established colonies in most of the Cyclades, such as Naxos, Andros, Paros, and Delos, and also in Euboea. The emigrants who proceeded to the coast of Asia, under their leader Neleus, took Miletus, which was then inhabited by the Carions. Miletus seems to have fallen to the share of the Athenian Ionians, who, according to the frequent custom of those times, massacred all the men, and kept the women for themselves. They also colonised Myus and Priene, near the banks of the Maeander. Another party of Ionians under Androcles took possession of Ephesus, and drove away the Leleges and...
Carian inhabitants. [Ephesus.] They likewise occupied Lebedos and Colophon, the latter of which towns was inhabited by Greeks who appear to have been originally from the Ionian colonies. Further north too, which had been built by the Æolians, received also an Ionian colony, as well as Ephesus on the coast facing the island of Chios. On the north coast of the same peninsula Claromena was founded by a colony of Lydians, and Phocaea, still Phocaea was colonized by adventurers from Phocis and Ionians from Attica on a territory north of the Hermus, which belonged originally to the Cumeans of Æolia. The abode with which the two islands Chios and Samos, on which the Ionians likewise colonized, formed the confederation of the twelve cities of Ionia. Smyrna being seized by Colophonian exiles (according to Herodotus), was in course of time added to the confederation. Other colonies from which the city was built along the coast, such as Gerou, Mymeneus, Charos, &c.

This confederation appears to have been mainly united under a common religious worship and celebration of a periodical festival; and it seems that the deputies of the several states only met in times of great difficulty. The place of assembly was the Panionium, at the foot of Mount Mycale, where a temple, built on neutral ground, was dedicated to Poseidon. In the old Ionia (afterwards called Attica) there was also the temple of the same deity, and this temple continued at Helice till that city was destroyed by the great earthquake. That the settlers in Asia should retain their national worship is a circumstance perfectly in accordance with the history of colonization, and confirmation to this effect is to be found in several of the inscriptions recorded by the Ionians of Asia. We have no materials for a history of these cities of Ionia as a political community, and no reason for supposing that their political union came near the exact notion of a federation, as we have conjectured as a given up from the Cumean gulf on the north to Mount Grias and the gulf Basilieus south of Miletus, a length of not more than 100 miles in a straight line, but with a coast three times that length, owing to the peninsulas and the form of the large Chersonesus opposite Chios. The Ionian territory did not extend inland above 40 miles from the coast as far as Mounts Sipylos and Timolus. It bordered on the north on the territory of Pergamus, Cyme, and other Æolian cities which had been colonized several generations before the Ionian immigration, and on the south upon Caris, where the Dorian colonies formed, some time later, a small confederation. The principal rivers of Ionia were the Hermus, the Cayster, and the Massander, all three flowing from the interior of the country into the sea. [The map.] The Asiatic Ionians early attained a high degree of commercial and maritime prosperity. Miletus alone is said to have founded 75 towns or colonies. They became wealthy, refined, and luxurious. The remodeling and the formation of taste for the arts, and their temples and public buildings rivalled those of European Greece. The literature of Greece may be said to have originated on the coast of Asia Minor. The historian Hecataeus was a native of Miletus; Thales, one of the earliest philosophers, was from the same country. Anacreon was a native of Teos; and Herodotus, though a Dorian, adopted, in his History, the language of his Ionian neighbours.

The Lydian kings, whose capital was at Sardis, made war against the Ionian states, who only obtained peace and preserved a kind of independence by paying tribute, but they were finally subdued by Croesus. They remained faithful to the Lydians, when attacked by Cyrus (B.C. 546), in which war, that monarch was slain, and the Lydians, sent his general Harpagus to reduce Ionia. Harpagus took and destroyed Phocaea, and the surviving inhabitants fled by sea, and founded Massilia (Marseille) on the coast of Gaul. About the same time many of the Thracians left their country and founded Aulder in Thrace. Priene was taken by Harpagus, and the inhabitants were sold as slaves. Miletus and the other cities obtained peace on the same conditions as they had accepted under the kings of Lydia. In almost every town there were two parties, aristocrat and democrat, and the Lydian kings or the Persian satraps generally favoured the former, and thus it happened that most of the Greek cities in Asia came to be ruled by tyrants, or individuals who possessed the sovereign power. Aristogoras, who was deputy tyrant of Miletus in the time of the first Darius, having quarrelled with the Persian satrap, urged his fellow-countrymen the Ionians to revolt, to expel their tyrants, and to establish democracy. He set an example to others, and at the same time, by the danger of robbing the formidable power of Persia, in vain opposed this rash measure. Aristogoras proceeded to Athens, and obtained the assistance of a fleet. The Athenians and Ionians united marched to Sardis, and plundered and burnt the city, but the Persians coming in great force, the confederates were defeated, and the Athenians withdrew from the contest. The Ionian fleet was strong at sea, but could not prevent the satrap Artaphernes from attacking and taking their cities by land. Claromena was bombarded and a settlement. The territory of Miletus was given up to Persian or Lydian colonists. Thus ended, about 494 B.C., the Ionian revolt, which lasted six years. Miletus however seems to have recovered from its ruin after a time, and the victories of the Greeks over Xerxes had the effect of restoring the fugitives to their respective cities.

After the battle of Mycale (B.C. 479), and the victories of Cimon, the Greeks became absolute masters of the sea, and the Persians did not venture near the coast. The Athenians, by the conquest of the coast, the loss of Persia was obtained a kind of supremacy of the eastern part of the Ægean, and the Ionian cities acknowledged Athens as their leader and arbiter of their disputes. At the close and after the conclusion (A.D. 404) of the Peloponnesian war, the Ionian cities recognized the sovereignty of the towns of Asia changed protectors. Accordingly we find Agesilaus reconciling their intestine feuds, and professing, as the object of his expedition into Asia, to secure their independence.

But by the peace of Antalcidas, 387 B.C., the towns on the continent of Asia, as well as the Ionian islands, were again led up to the king of Persia, who however does not appear to have treated them harshly, for many of them were in a prosperous state at the time of Alexander's expedition. After the battle of the Granicus the Ionians submitted to the Persian power, and were the upper hand, and Alexander gave them his countenance, at the same time forbidding them strictly from offering any further violence to the vanquished aristocracy. Miletus alone did not submit; it sent proposals however to Alexander, offering to remain neutral, but the conqueror sternly repulsed the proposal: the town was taken by storm, and most of the inhabitants put to the sword. It does not seem to have ever after completely recovered from that blow; and the gradual deposition of the Massander, which contributed to its depression. Miletus, once a seaport town, is now eight miles from the sea, and the island of Latmos, which stood at the entrance of its harbour, is become part of the mainland. The town was still a town of some consequence under the Romans, and under the Byzantine emperors, till the twelfth century, when it was ravaged by the Turks. There are now only a few huts amidst its ruins inhabited by some Turkish families, but the place retains the pompous name of Palatine palaces.' Chandler found remains of a vast theatre, and also of the famous temple of Apollo Didymenus in its neighbourhood, with several of the columns still standing. Under the Roman empire several of the other cities of Ionia still maintained the rank of wealthy cities, such as Smyrna and Ephesus. The best account of the actual state of the remains of the Ionian cities is in Chandler's Travels in Asia Minor, and the Ionian Antiquities, published by the Dilett. Antich. and Arch. Soc. of London. (See also Leake's Map of Asia Minor; Macfarlane's Constantinople in 1828; and Chishull's Asia Antiquitates; Herodotus, l. i. 141-151; Strabo, lib. xiv.; Pausanias, vii. 1-5.)

IONIAN ISLANDS is the name given to the seven islands of Corfu, Cephalonia, Zante, Santa Maura, Ithaca,
Paxo, and Cefiro, which are scattered along the coast of Epirus and of the Peloponnesus. The name is probably derived from their being situated in that part of the Mediterranean which stretches between Greece and Calabria, and which from ancient times has received the name of the Ionian Sea. [IONIA.] These islands are described under the several heads of CEPHALONIA, CORYN, ITHACA, ZANTE, &c. Under the head CORFU an account is given of the present constitution and administration of the republic of the United Ionian Islands under the protection of Great Britain. The following is a general view of the population, extent, produce, trade, and education of these islands.

**Population.**—A statement of the area, population, &c. of each island in 1834—

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<td>106</td>
<td>2,438</td>
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*Crops.—Number of Acres of Land under each Kind of Crop.*

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*Total Produce.—Wheat, 234,727 bushels; Indian corn, &c., 177,663 bushels; oats, 23,944 bushels; currants, 15,071,460 lbs.; oil, 253,923 barrels; wine, 306,822 barrels; cotton, 44,145 lbs.; flax, 94,522 lbs.; pulse, 19,826 barrels; salt, 114,193 lbs.*

The exports from the Ionian Islands in 1833 amounted to 250,669l. and consisted principally of oil, currants, wine and spirits, soap, and some other articles of less importance.

The imports into the Ionian Islands in 1834 amounted to 563,611l., and consisted of sugar, coffee, cotton and woolen goods, earthenware, hardware, timber, wheat, rice, cheese, cattle, sheep, and a variety of other articles.

**Education.**—The following is the number of schools, &c., as they existed in 1834:—

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Corfu</td>
<td>4</td>
<td>294</td>
<td>294</td>
<td><strong>£ 3,261</strong></td>
<td>294</td>
<td>333</td>
<td><strong>£ 3,261</strong></td>
</tr>
<tr>
<td>Cephalonia</td>
<td>12</td>
<td>415</td>
<td>394</td>
<td><strong>£ 1,609</strong></td>
<td>294</td>
<td>333</td>
<td><strong>£ 1,609</strong></td>
</tr>
<tr>
<td>Zante</td>
<td>2</td>
<td>150</td>
<td>150</td>
<td><strong>£ 623</strong></td>
<td>294</td>
<td>333</td>
<td><strong>£ 623</strong></td>
</tr>
<tr>
<td>Santa Maura</td>
<td>2</td>
<td>126</td>
<td>126</td>
<td><strong>£ 537</strong></td>
<td>294</td>
<td>333</td>
<td><strong>£ 537</strong></td>
</tr>
<tr>
<td>Ithaca</td>
<td>2</td>
<td>266</td>
<td>258</td>
<td><strong>£ 537</strong></td>
<td>294</td>
<td>333</td>
<td><strong>£ 537</strong></td>
</tr>
<tr>
<td>Cefiro</td>
<td>9</td>
<td>369</td>
<td>406</td>
<td><strong>£ 331</strong></td>
<td>294</td>
<td>333</td>
<td><strong>£ 331</strong></td>
</tr>
<tr>
<td>Paxo</td>
<td>5</td>
<td>192</td>
<td>171</td>
<td><strong>£ 268</strong></td>
<td>294</td>
<td>333</td>
<td><strong>£ 268</strong></td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>1,789</td>
<td>1,906</td>
<td><strong>£ 6,172</strong></td>
<td>206</td>
<td>4,853</td>
<td>826</td>
</tr>
</tbody>
</table>

At Corfu there is a university, and also an ecclesiastical seminary for the education of young men intended for the priesthood of the Greek church. Each of the islands also has a school, entitled 'Secondary,' in which the scholars are instructed in the Greek and Latin classics, in the modern Greek, English, and Italian languages, and in arithmetic and elementary mathematics. In the chief town of each island there is a central school, on the mutual instruction plan, for teaching reading, writing, and arithmetic.

Besides these schools, conducted entirely at the public expense, there are in each island district schools on the same plan as the central schools, where similar instruction is given, and the expense is defrayed by the parents of the children. The terms per scholar vary greatly, and the payment is frequently made in kind. Government also contributes to the establishment of these schools by furnishing books, slates, benches, &c., and, where no suitable church exists for the purpose, by providing a school-house.
The district and village schools are under the immediate superintendence of the head master of the central school in its district, and there is an inspector of all the schools. The whole of the establishment for education is under the general direction of the commission for public instruction.

The only coinage of the states is a copper currency of farthings to the amount of 10,000L. The general circulating medium consists of Spanish dollars. Some British silver coin has also been put into circulation, but the greater part has been withdrawn for remittances to Malta and to exhibit.

The Troy pound of 5760 grains is the standard weight: 24 of these grains make 1 calco; 20 calchi 1 ounce; and 12 ounces 1 libbra sottile, or pound light weight, equal to 1 lb. Troy. The libbra grossa, or great pound, contains 7000 grains. The pound avoirdupois; 100 lbs. (libbra grossa) are called a talento. The English imperial standard yard is the standard linear measure, with the divisions into 3 feet and 36 inches: 5½ yards are 1 camaco; 220 yards 1 stadio; and 1760 yards 1 mile. The imperial gallon is the measure of capacity: 1 gallon is equal to 8 dicaso. An Ionian barrel contains 16 gallons, or 128 dicaso.

IONIAN SCHOOL comprises several of the earliest philosophers of Greece, whose speculations were preeminently of a physiological character, and who, with one or two exceptions, were natives of the Ionian colonies in Asia Minor. From this purely external circumstance the school has derived its name, and its members have been brought into a connection of master and disciple by the learned labours of the later Greeks, who strove to give to the first development of philosophy the same orderly transmission of doctrine which prevailed in the later schools. Accordingly Anaximander is made the scholar of Thales, and the teacher of Anaximenes, who had two disciples, and whose disciple was Archelaus of Athens, or Miletus, in whom the school closes. Now, not to mention that this purely artificing school, with its rival Heracleus, the chief of the Ioni or fi, it is also open to great difficulties both of doctrine and chronology. As regards the latter however, we shall only advert to the general difficulty, that between six and seven generations (212 years) are occupied by the lives of Thales, Anaximander, Anaximenes, and Anaxagoras. The incongruity of the received arrangements appears at once on the slightest consideration of the doctrinal systems of the philosophers of this school. Agreeing in the hypothesis of a primum state of things, they differed widely in the mode in which this doctrine was represented for the deities nomina out of the primal substance. One theory endured the universe with life, and considered the orderly procession of all things to be a spontaneous development of a pre-existent nothing. A second accorded for all apparent alteration in the form and qualities of natural bodies by certain changes in the outward relations of space, and proceeded on the supposition of certain permanent material elements which change place in obedience to motion, either originally inherent in or extrinsically impressed on the mass. The latter is the mechanical, the former the dynamical theory of nature. Of the dynamical theorists, Thales first of all taught that all things are pregnant with life; that the seed or germ of vitality, which is in all things, is water, because all seed is moist and humid. Of this potentially living entity Anaximenes advanced a still worthier representation, and taught that the primal substance is infinite and sensuously imperceptible. This principle, to the animal soul, is identical with the animal soul governs the body, so the universal soul rules and embraces all things. Diogenes made a still farther advance, and maintained that the harmony and design of the mundane fabric suggest the unity and intelligence of its first principle an unbroken complex however be considered as some physical, and only distinguished from natural phenomena in this, that while it is infinite, as the principle of all, they are finite. Still bolder was the flight of Heraclitus, who taught that the world is an everliving being, a rational first principle which involves a tendency to contraries, and is ever passing from want to satiety.

The mechanical theory is first opened by Anaximander, who flourished not long after Thales, who conceived the ground both of production and motion to be an eternal substance, which he called the infinite, and wherein the immutable elements were indistinguishably combined. Out of this chaos certain primary contraries, as he conceived them, were generated, and from the course of certain separations and combinations alternately proceeding, more perfect forms are spontaneously developed, to be ultimately resolved into the homogeneous prime. After a long interval of a century Anaxagoras, who has received the name of a mechanical philosopher, and distinctly advanced the principle on which it rests, that nothing is changeable, but that the nature of every thing is permanent. Seizing the contrariness of the moving and the moved, which the former philosopher thus says is so well called, he founded the latter to be extended antitypical bulk, inert body, infinitely multiple both in qualities and parts. The moving principle, on the contrary, is perfect, simple, and homog- eneous soul or spirit, which, as moving the elements into combinations, is used to the boundless. The faculty of knowing and surveying whatever was, and is, and shall be. Archelaus rather abandoned than advanced the views of his master Anaxagoras, and in him, as the teacher of Lyceus, the Ionian school became extinct before the more extensive development of the Scotoic philosophy. (Ritter, Geschicht d. Ionischen Philosophie; and Brandes, Geschicht d. Griech.-Rom. Philos.)

IONIAN SEA. [IONIA.]

[IONIC SELECT. The softest of the four write varieties of the Greek language, was spoken in the Ionian colonies of Asia Minor, and in several of the islands of the Aegean Sea. As the new Ionic, it is distinguished from an older, which was the common origin of itself and the Attic. This language flourished in Athens, which was con- tensive with the Ionian settlements in the Peloponnesus and Northern Greece. (Thirlwall, History of Greece, i., 120.) The language of epic poetry arose out of this original tongue.

A Dorian conquest passed, on the one hand, with the fugitives I tw Asiatics, on the other continued to be spoken, for awhile at least, by the conquerd paesantry who remained in Greece Proper. This tradition, which however, like most of the earlier traditions of Greeece, is often in for the Protogreek, is not concern- ing the similarity of the language employed by Homer and Hesiod, who, though near to each other in time, were widely separated in the supposed scenes of their poetical labours. (Ibid., p. 120.) This first matured form of the Ionic has been called the epic, and was faithfully adhered to as the standard of Greek epic and elegiac composition by all subsequent writers of epo or elegy, which also owned its birth to Ioni.

On the formation of the new Ionic, or simply the Itonic, great influence was exercised by the commerce of the Ionians, and especially by their intercourse with the soft and effemi- nate Asiatics. Neglecting the combination of strength with grace, and the more delicate qualities of language, the Ionians adopted, or rather borrowed, those elements (what in the common legends of Homer is otherwise inex- plicable) the similarity of the language employed by Homer and Hesiod, who, though near to each other in time, were widely separated in the supposed scenes of their poetical labours. (Ibid., p. 120.) This first matured form of the Ionic has been called the epic, and was faithfully adhered to as the standard of Greek epic and elegiac composition by all subsequent writers of epo or elegy, which also owned its birth to Ioni.

IONIC ORDER. [Civil Architecture; Column.] IONIDUM, a genus of violaceous plants, inhabiting the tropical parts of America. It resembles Viola itself in most respects, but its sepals are not prolonged at the base into appendages, and the lower petal is not spurred. Several species are used medicinally. I. Ipecacuanha and some others.

IONA, or JORI, a genus of birds established by Dr. Horstfeld, and placed by Mr. Swainson among his Brachy- podinae, or short-legged thrushes. [Merulide.]
The root is in pieces from two to six inches long, and about the thickness of a straw, much bent or twisted, and is not divided but composed of single, slender, light-colored roots, with a remarkably knotty character, owing to its numerous circular depressions or clefs, which give the whole a sort of the appearance of a number of rings; and hence the term annulated. It consists of a central axis called medullarium, and an escential portion, called the cortical part. Each contains emeta; but by far the greater portion exists in the cortical. Of the three varieties of annulated ipecacuan the brown contains 16 per cent. of emeta, while the red contains only 14 per cent.; the grey has not been analyzed.

Another sort of Ipecacuan from the Psychotria emetica: this kind contains only 9 per cent. of emeta, and the undulated or amylaceous ipecacuan, the produce of the Richardsonia acabra, holds only 6 per cent. of emeta, with 92 per cent. of starch. Besides these, there are other plants used in tropical countries as emetics, and often termed ipecacuan.

The dust or powder of ipecacuan applied to any mucous surface causes irritation and increased secretion from the part. It is chiefly employed to excite the stomach either to augmented secretion, or to invert its action, and effect vomiting. It is also capable, by being combined with other substances, of being directed to the skin, and producing increased perspiration. When given in very small doses, it improves the appetite; at a larger dose, it acts on the intestines; but in a still larger, it inverts the action of the stomach, and occasions vomiting. It may therefore be used in a great many diseases, such as indigestion, dyspepsia, diarrhœa, chronic dysentery, cholera, grippe, &c. [EMETA: EMETICS: DIAPHORETICS: ANTIDOTES.]

Iph'ici-rites, an Athenian general, most remarkable for a happy innovation upon the ancient routine of Greek tactics, which he introduced in the course of that general war which was ended B.C. 387 by the peace of Antalcidas. This, like most improvements upon the earlier methods of warfare, consisted in looking, for each individual soldier, rather to the means of offence than of protection. Iphicrates laid aside the heavy panoply, which the regular infantry, composed of Greek citizens, had always worn, and substituted a light target for the large buckler, and a quilted jacket for the coat of mail; at the same time he doubled the length of the sword, usually worn thick and short, and increased in the same, or, by some accounts, in a greater proportion, the length of the spear. It appears that the troops whom he thus armed and disciplined (not Athenian citizens, who would hardly have submitted to the necessary discipline, but mercenaries following his standard, like the Free Companions of the middle ages), also carried missile javelins; and that their favourite mode of attack was to venture within throw of the heavy column, the weight of whose charge they could not have resisted, trusting in their individual agility to fable pursuit. When once the close order of the column was broken, its individual soldiers were overmatched by the longer weapons and unnumbered movements of the lighter infantry. In this way Iphicrates and his targeters (pelasteis), as they were called, gained so many successes that the Peloponnesian infantry dared not encounter them, except the Lacedemonians, who said in scoff that their allies feared the targeters as children fear hobgoblins. They were themselves taught the value of this new force, B.c. 392, when Iphicrates waylaid and cut off nearly the whole of a Lacedemonian battalion. The loss in men was of no great amount, but that heavy-armed Lacedemonians should be defeated by light-armed mercenaries was a marvel to Greece, and a severe blow to the national reputation and vanity of Sparta. Accordingly this action raised the credit of Iphicrates extremely high. He commanded afterwards in the Hellespont, B.C. 389; in Egypt, at the request of the Persians, B.C. 374; relieved Coreya in 373, and served with credit on other important occasions. [Xen., Hell.; Diod.; Corn. Nep.]

Iph'tis. [Leucoglossas.]

Ipom'oëa, a genus of plants of the natural family of Convolvulaceae, which are very closely allied to Convolvulus, or bindweed, which from that it obtained its name. As the more minute investigations of modern botanists considerable changes have taken place in the nomenclature of the species sometimes referred to this genus and sometimes to other nearly allied genera. M. Choisy, who has most recently examined the Oriental Convolvulaceae, excludes many species usually referred here, and forms the genus of the species of Ipomoea and Convolvulus of authors. Ipomoea has a

5-sepa'led calyx, a campionate corol, with five stamens included within it. Style single; stigma bilobed; lobes capitate; ovary 2-seelled; cells 2-seeded; capsule 2-celled. The species are very numerous, and found in the tropical parts of Asia, Africa, and America. A few ascend the mountains in such latitudes.

Most of the species are ornamental; others have been removed to Quamoclit, Argyreia, Pharbitis, &c. &c., and one of the most useful as an article of diet in tropical countries, to Batatas. B. edulis produces the tubers so well known by the name of Sweet Potatoes.

Like the kindred genus Convolvulus, which affords us so many of the species of Ipomoea are useful for their purgative properties: thus the Jalap plant is of this genus; and in India, I. Turpethum and carneula are useful for similar purposes. Of the last the seeds only are employed, and form the hub-al-nil of Arabian anthors, which has been usually translated grumum Indicum. \( \text{I. Turpe-thum,} \) probably so called from the Arabic toorbud, which is itself no doubt derived from the Sanscrit tripota (from tr, three, and pada, the coat of a seed), or from \\( \text{tritef,} \) another name, as the plant is an Indian one, and its root has been long employed in India as a common purgative. The bark of the roots is the part employed by the natives, as it contains all the active properties, which they use fresh, raised up with milks. About six inches in length of a root, as thick as the little finger they reckon a common dose. (Roxb.) It is reckoned an excellent substitute for Jalap, and is free from the nauseous taste and smell of that drug. The plant is a native of all parts of Continental and probably of India also, as is said to be found in the Society and Friendly Isles and the New Hebrides. (Fl. Ind., ed. Wall. 2, p. 59.)
ISPS, BATTLE OF. [ANTIGONUS, p. 103.]

ISPUSCH, a parliamentary borough and corporate town, capital of the county of Suffolk, and distant 69 miles north-east from London, is agreeably situated on the side of a hill named the White Gravel, on the rivers Orwell and Gipping. According to Camden, this town was antiently called Gippswich, which name was derived from that of the neighbouring river Gipping, or Gipping, and thence gradually became changed into Ypppswyche and Ipswich. The town does not appear to be mentioned before the invasion of the Danes in 991, by whom it was pillagd, and the fortifications destroyed. In the Confessor’s time, according to Domesday Book, ‘Queen Edwa had two parts here, and earl Gwert a third part, and 500 burgesses, with all courteous customs.’

The earliest charter confirmed upon the town was granted by king John in the first year of his reign, and by it numerous privileges were acquired by the burgesses, of which privileges the chief were, that they should have a merchant’s guild, with their own bane; that no person should be lodged within the borough without the consent of the burgesses; that they should hold their lands and tenures according to the customs of free burgesses, &c. Henry III. confirmed the privileges of the burgesses, but in the reign of Edward I. the borough was seized by that monarch, on account of certain offences committed by the inhabitants, though it was afterwards restored to them with all its liberties. In the reign of Edward III. the municipal government has been changed several times, by disbanding the corporation, and committed to the sheriff of the county, by whom a keeper of the town was appointed, but the corporate government was soon restored, and the burgal privileges confirmed and extended by the subsequent charters of Richard II., Henry IV., Edward IV., Richard III., Henry VII. and VIII., Edward VI., Elizabeth, James I., and Charles I. In the reign of Charles II. this corporation, like many others, surrendered its charters and franchises to the 30th year of the reign of George II. and the corporation was re-incorporated, with a new constitution, and by a charter of James II. the corporate officers were released from the oaths. The charters of John, Edward IV., Henry VIII., and 17 Charles II., as restored by the proclamation of James, are all considered as governing charters. By the 5 and 6 William IV., cap. 76, the council of the borough consists of a mayor, 10 aldermen, and 30 councillors. Ipswich has returned two members to parliament since the 25th year of Queen Victoria.

The revenue of the corporation, consisting of water rent, rents of lands, houses, mills, and other tenements, exceeds 2000l. per annum. The expenditure in 1828 amounted to 1252l. 19s. 1d., and the corporation property is charged with the debt of 320l.

The streets of Ipswich, though well paved, and lighted with gas, are narrow and irregular, which is attributable to the remarkable circumstance that the town is not known ever to have suffered from fire, or even from the civil commotions which convulsed so many parts of the kingdom about the middle of the seventeenth century. There are many good buildings, and many extremely old, decorated with a profusion of curious carved images. Most of the houses, even in the heart of the city, have convenient gardens adjoining them, which render it at once agreeable, airy, and salubrious. The water for the supply of the town rises from springs in certain lands which the corporation has a lease of under certain agreement, and is conveyed into the town by pipes laid down at their expense. The water rental, which forms a considerable part of the revenue of the corporation, has been the source of much discontent among the inhabitants, as the former claim a monopoly of the supply, and the latter have paid without a recompense. In consequence of this, a Report of the Commissioners on Municipal Corporations, 1835, the policy of the town is described as being particularly inefficient.

The manufactures of the town consist chiefly in the spinning of woollen yarn, ship-building, sail-making, &c. Its commerce arises from the exportation of corn, malt, and other produce of the surrounding country. There is a harbour for light vessels formed by the estuary of the Orwell, which is navigable at high water up to the bridge, except for vessels of large burthen, which lie at Downham Reach.

The principal public buildings are the churches of Saints Clement, Helen, Laurence, Margaret, Mary at Elms, Mary at Kay, Mary at Stoke, Mary at Tower, Matthew, Nicholas, Peter, and St. Mary-at-Mill. To the south of the town St. Mary at Kay was formerly a house of Black Friars, called the Priory of St. Peter’s. The extensive site of this convent was purchased by the corporation, and confirmed to them in 1572 by the appellation of Christ’s Hospital. The present site of the school is formed part of the roof, in which they are maintained, clothed, and educated, but the number during the five years preceding 1832 had never exceeded sixteen. The revenue of the hospital is estimated at 460l. a year. In another part of the monastery is a spacious room wherein the revenues of the keys which are kept by the master of the grammar-school, and out of which every freeman is privileged to take away any book upon giving a proper receipt. In the spacious apartment of the infirmary, a hospital for the poor, which is now held the Free Grammar-school, the date of the first establishment of which is not known, though it was certainly prior to the year 1477. But in 1524 Cardinal Wolsey having intimated to the university of Oxford his design of founding a college (now Christ’s College), the then master of St. Peter’s was surrendered to him in 1527, whereon he founded a school as a nursery for his intended college at Oxford, and this school is said for a time to have rivalled those of Ston and Wincheste. Queen Elizabeth, in the second year of her reign, confirmed this charity, and by her later charter regulation of the Grammar-school and of Christ’s Hospital. At the present time the master has a salary of 150l. a year; he is provided with a dwelling-house, and the appointment for the headmaster is not always taken away from the corporation, but a Charities a committee has been appointed to investigate the endowments of the Grammar-school. They state that the original endowment under the charter of Queen Elizabeth was 36l. 13s. 4d. per annum, which with some subsequent bequests makes an aggregate annual income of 66l. 6s. 8d.; but it does not appear from what source the additional funds are derived in order to liquidate the master’s salary of 150l. and to defray the other expenses of the establishment.

Ipswich is in the diocese of Norwich. The living is decanted in the patronage of the corporation. The benefice is valued in the增强版的rentals at £320l., £337l., and £37l., and seven paid curacies of the net value of 155l., 115l., 80l., 303l., 150l., 138l., and 103l. The borough is divided into fourteen parishes, the aggregate population of which in 1831 was 20,201 persons. (Gough’s Camden’s Britannia; Carlisle’s Endowed Schools; Beauties of England and Wales; Public Affairs, &c.)

IRAkJAjEMI. [PERSIA.]
IRAK JEMELI. [BAGDAD.]
IRAPUATO. [MEXICO.]

IRELAND, the second in size of the British islands, and the second largest island of Europe, lies west of Great Britain, in the Atlantic Ocean. The general maps of Ireland at present published are too imperfect to give the means of state and topography more accurately than to show that lies between 51° 21' and 55° 22' N. lat. and 5° 27' and 10° 35' W. long. The arm of the Atlantic which separates Ireland from Great Britain, and bounds it on the north-east, east, and south.
south-east, is narrowest at its northern extremity, where it is called the North Channel, and the opposite coasts approach within 14 miles, between the Mull of Galloway in Scotland and Fair Head in the county of Antrim. Southward from this, that part of the channel which contains the Isle of Man expands to a breadth of 150 miles, between the coasts of South and Lancashire, and bears the name of the Irish Sea. The coast, being continued by the projecting coast of Wales to a breadth of about 65 miles, it assumes the name of St. George's Channel, which it bears until it expands into the Atlantic at its southern extremity. The remainder of the coast-line is moderate, and the west, south-west, and south-west is formed by the Atlantic Ocean. The chief lines of communication between Ireland and Great Britain are from Londonderry to Glasgow, 138 miles; from Belfast to Glasgow, 167 miles, and to Liverpool, 156 miles; from Dungarvan to Portpatrick, 21 miles; from Dublin to Liverpool, 350 miles, to Holyhead, 65 miles, to Port-Dumlinlyn, 70 miles; from Waterford to Bristol, 222 miles; from Cork to Bristol, 288 miles—sailing distances.

According to the Map published by the Society for the Diffusion of Useful Knowledge, the greatest length of Ireland, in a line nearly from north to south, is from Bloody Fairland Point in the county of Donegal to the Old Head of Kinsale in Cork, 243 miles; and the greatest breadth, from Annaghmore in Portpatrick, to the coast of the mouth of Loch Strangford in the county of Down, a little to the north of east, 200 miles. In an oblique direction the greatest length is, from Fairhead in the county of Antrim to Mizen Head in the county of Cork, 366 miles, in a line bearing from the limestone coast of the north to the north-east of the island. The completion of the Ordnance Survey of Ireland, nothing can be stated with certainty regarding the area of Ireland. It is however estimated in the Map published by the Society for the Diffusion of Useful Knowledge, that the area of the Useful Knowledge is 45,399 statute acres, or 29,888 statute square miles, of which 215,252 statute acres are under water. Another estimate made in 1831 is as follows:

<table>
<thead>
<tr>
<th>Type</th>
<th>Statute Acres</th>
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<tbody>
<tr>
<td>Dry land</td>
<td>14,695,473</td>
</tr>
<tr>
<td>Unprofitable, mountain and bog</td>
<td>5,340,736</td>
</tr>
<tr>
<td>Lakes</td>
<td>455,399</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20,399,668</strong></td>
</tr>
</tbody>
</table>

This is probably the true amount.

**General Features.**—The general form of the island is that of an oblique parallelogram, the longer diagonal lying between Mizen Head on the south-west and Fair Head on the north-east, and the shorter between Erree Head on the north-west and White Head on the south-east. The most southerly part of the island, which is most exposed to the Atlantic, is deeply indented with arms of the sea penetrating between rocky and mountainous promontories; the western shore in general is lofty and precipitous, and the eastern plain.

The most remarkable feature in the distribution of high and low land over the surface is the great limestone plain which occupies, with slight interruption, almost the whole of the central district extending from the sea at Dublin on the east to the bay of Galway on the west, and from the counties of Sligo and Fermanagh on the north to the confines of Cork and Waterford on the south. The chief mountain groups are either external to this plain, or rise in inselbergs near its borders. Commencing from Dublin, where it touches the sea, the first interval between the limestone country and the Channel is occupied by the granite range of the Wicklow and Mount Leinster Mountains, which extends southward from the confines of Dublin and Wicklow into that of Wexford and terminates near the confluence of the Barrow and Nore. From the flanks of this chain a clay-slate formation extends on the one hand into the eastern portion of Kilkare, and on the other, to the sea forming the most considerable portions of Wicklow, and almost the entire of Wexford. This district is intersected by intruded masses of quartz and greenstone. Abutting on the southern extremity of this granite range commences a series of mountain-groups skirting the limestone plain on the north-west, and consisting of igneous and old conglomerate supporting flanks of yellow sandstone. One group, that of the Gailees in Tipperary, is entirely insulated by the limestone, which also occupies several longitudinal valleys of the external district and in some places penetrates to the sea. This is the most extensive mountain district of Ireland. Commencing from the entire Slieveconnam, Knockmoldown, and Gailees range extend in succession eastward to the border of Meath, beyond the south of the county of Kilkare, across the south of Kilkare, Tipperary, and Limerick; after subsiding under the coal district which spreads from Limerick over the north-east of Kerry, they rise again towards the Mount Brandon, which terminates the series in a lofty promontory which separates the waters of Dingle from the mouth of the Shannon. Southward from these groups the same formation occupies the entire counties of Cork and Kerry; the elevations here towards the north is not so marked as over a wider surface and attain a greater altitude as they trend towards the sea, occupying the whole western part of Cork and the southern portion of Kerry with precipices and sterile ridges, among which MacGillivray's Rocks in the county of Kerry, rise 2494 feet above the ground in Ireland. Northward from Dingle Bay the limestone district again touches the sea, but throughout the western parts of Limerick and Clare it is overlaid by the great Munster coal-tract, from under which it again emerges on the south side of the bay of Galway. North and west of Galway the space between the limestone plain and the sea is again occupied by mountains. An extensive tract of granite—wedges of quartz and greenstone rising to 800 feet over the level of the north-eastern boundary of the bay of Galway, and from this point northward to Killalla Bay a series of primitive rocks consisting chiefly of mica-slate and protruded masses of quartz is interposed between the Atlantic and the inland plain, except in one instance which places to the north-west of the county connecting the plains of Mayo with the head of Clew Bay. A primitive ridge of mica-slate and granite, nearly surrounded by the limestone which intervenes between it and the sea, extends this district northward and westward through Sligo to within a short distance of the borders of Donegal, where it subsides to rise again in that extended primitive formation which occupies almost all the county of Donegal and a great part of the counties of Down and Tyrone. The northern part of this district consists of granite and quartz with numerous veins of primitive limestone, which is also of frequent occurrence throughout the great field of mica-slate that constitutes the remainder and rises in mountains from 1500 to 5000 feet high. This district is continued on the east by the great clay-slate field of Antrim, which overlies it through an extent of nearly 800 square miles: the cap of trap is supported throughout by a bed of chalky white limestone reposing on lins, the denuded ridges of the great peneplain form an extraordinary variety of surface and structure; the density and stratum of mica-slate protrudes from below the superincumbent masses at the north-eastern extremity of the field, and crossing the Channel re-appears in Scotland. The clay-slate tract with the trap projects north and west, extending over Down and Armagh into Monaghan, Louth, and parts of Cavan, Meath, Longford, and Roscommon, also re-appears on the opposite side of the Channel, forming the gravawacke district which extends from Portpatrick to St. Abb's Head on the Frith of Forth.

The granite group of the Mourne Mountains and the granite and greenstone group of Slieve Gallion occupy a considerable portion of this clay-slate tract, protruding in conspicuous masses in the southern parts of Down and Armagh to a height of 2500 feet and upwards. This completes the circuit of the interior plain which extends between the last-mentioned district and Dublin on the sea.

The principal detached groups which occur within the limestone plain and from the counties of Sligo and Donegal, the ranges, consisting of nuclei of clay-slate supporting flanks of red and yellow sandstone, which extend to a considerable distance on each side of the valley of the Shannon in the counties of Tipperary and Queen's County, and Clare and Galway respectively, converge like a river into a chain of moderate elevation on the borders of Roscommon and Sligo in the north-west part of the plain, and several greenstone elevations diversify its surface in the centre and south-west.

The limestone district likewise contains six coal-districts, the Leinster, or Castlecomer district, on the south-east; the Slieve Arda, or Tipperary district, on the south; the Munster district, extending through parts of the counties of Cork, Kerry, Limerick, and Clare, on the south-west; the Coal-Allen district, round the source of the Shannon, on the south.
west; and the Monaghan and Tyrone districts, on the north there is also a coal district of small extent in the north-eastern extremity of the county of Antrim. The coal raised in the southern districts is anthracite, or blind-coal; that raised in the districts north of Dublin is bituminous.

The central district of Ireland contains upwards of one million of acres of bog, comprehended for the most part within that portion which would be embraced by lines drawn from Wicklow to Galway, and from Howth to Sligo. The greater portion of these bogs lies west of the counties of Galway, Roscommon, and Mayo; the remainder, extending in various tracts through King's County, Longford, Westmeath, and Kildare, is known collectively as the Bog of Allen. Numerous ridges of peat, called ‘springle’, suround almost all these bogs, offering an unlimited supply of the material best adapted for their improvement. It is calculated that an expense of 15. per acre would be sufficient for the drainage of these bogs, which are at present inaccessible and useless for the purposes of tithary.

Besides these encumbrances the lower carboniferous limestone, which constitutes the central plain, is overlaid in many tracts towards the borders of the district by the upper or splintery limestone, and this is generally accompanied by a craggy and rough surface: such is the case with the vicinity of each of the coal districts and throughout the counties of Sligo, Fermanagh, Cavan, and Leitrim. These districts contain numerous caverns, and streams sinking into subterranean channels are here of frequent occurrence. By much the greater part of the central plain however is unincumbered, and has the pure carboniferous limestone for its substratum. Throughout these districts the soil is rich and sweet, and the surface gently undulating. The mountainous and waste lands of the more southern and comparatively small portion of the entire island, and many of the districts lying without the central plain rival the richest limestone lands in easiness of access and fertility.

Rivers and Lakes.—From the arrangement of the mountain groups round the borders of the central plain the courses of the greater number of the rivers of Ireland are necessarily short. Of those which drain the external districts the chief are the Blackwater and Lee in Cork, the Foyle in Donegal and Derry, the Bann and Lagan in Antrim and Down, and the Slaney in Wexford. The rivers of the central district have longer courses and a much greater body of water. The chain of Slieve Bloom and the low range of the Esker divide the central plain longitudinally into two unequal portions, of which the western division is by much the greater. The eastern or smaller division is again subdivided by the summit-level of the bog of Allen into a northern district, the waters of which discharge into the Irish Sea, and a southern district, which sends its drainage in an opposite direction into the Atlantic by the united streams of the Barrow, Nore, and Suir, all navigable rivers. The western division, which much exceeds the united basins of these several rivers, is drained solely into the Shannon, which, from its great body of water and course through a flat country, possesses the extraordinary advantage of being navigable from its source to its mouth, a distance of nearly 240 miles. Some portions of the central plain which lie beyond the basins of the Shannon and Boyne discharge on their chief drainage into a series of lakes which skirt the limits of the limestone country on the west and north. The lakes of Galway and Mayo form such a series, separating the counties of Connacht from the plain on the west; the extended line of Loch Erne in like manner drains that portion of the central plain which stretches towards the primitive district of Donegal and the high lands of Tyrone on the north; and Loch Neagh collects the waters of the latter by the Blackwater River on the north-east. The other principal lakes of Ireland lie within the basin of the Shannon, those of most consequence being merely expansions of that river. The water-power afforded by the numerous rivers and many lakes of Ireland is greater than in any equal extent of accessible country in Europe. The surface of all the lakes in Ireland is estimated at 215,252 statute acres, or 336 square miles.

Climate.—There is but a small portion of Ireland which is more than three hours distant to the north-east, and only three sides of the island the Atlantic Ocean extends uninterrupted: hence the climate is more moist and less liable to severe cold than in any of the neighbouring countries. On an average of five years ending with 1829 the annual quantity of rain which fell at Cork in the southern extremity of the island was 35 inches, and in a like calculation for Derry, at its northern extremity, the average annual quantity was 31 inches; being in both cases considerably above the average of the parts of Great Britain, though much below the average at Kendal, Keswick, and a few other places. Frosts are rarely severe in Ireland, and snow does not lie so long as in England; neither are thunder-storms of frequent occurrence or of so formidable a character. The excess of village has contributed to a considerable degree to lessen the extreme moisture complained of by early historians; and to the quantity of dark-coloured earth now annually turned up intelligent writers of modern times are generally inclined to attribute the winters which have latterly become much milder. The prevalent winds are from the west and south, and these are usually accompanied by a mild state of the atmosphere. Easterly winds are keen, and much dreaded by invalids. Instances of freezing are numerous, and the population generally healthy.

The chief characteristics of the scenery of Ireland are freshness and verdure: the surface is less rugged than that of Scotland, and more varied and undulating than that of England; the stony soil is generally deficient in timber. The works of various tourists have latterly attracted much attention to the natural beauties of the southern and western districts.

HISTORY AND ANTIQUITIES.—In the various names of Ireland, as known to the classic writers, Iris, Iernia, Ivernia, Hibernia, &c., the radical Ior or Eri, by which it is still known to its own natives, is plainly traceable. It is customary among the Irish to designate a country by the affix Hy, which in some cases, for instance in the names of the descendants of each, signifies literally the (dwelling of) the sons or family of, such as Hy-Mania, Hy-Tuirtre, Hy-Brazil, &c. In adding this affix to names beginning with a vowel it is applied only in the case of words having the concurrence of open sounds, thus Hy-v-Each, meaning the descendants of each or Asacus. Again, this affix requires the genitive, which in Eri is Erin, and thus all variations of the name, from the Iris of Diodorus Siculus, the Ir-land and Ireland of modern times, to the Erinna (Hy-Ernia) of the Orphic poems, and the Hibernia (Hy-b-Ernia) of Latin writers, would seem to be accounted for.

The name Scotia does not appear to have applied to Ireland till about the end of the third century, from which time to the beginning of the eleventh it continued to indicate that country exclusively.

The Scotti, who were in possession of the island at the time of the introduction of Christianity, appear to have been a people who inhabited the Boyne, and the adjacent mountains and monuments indicate a close affinity with the Belgae of Southern Britain. A people also called Cruithne by the Irish annalists, who are identifiable with the Picts of Northern Britain, continued to inhabit a portion of the island district called Hibernia Scotia, and by which name the glacis, formed on the summit of the mountains, and which is observable that the names of mountains and remarkable places in that district still strikingly resemble the topographical nomenclature of those parts of North Britain which have not been affected by the Scottic conquest. The monuments and relics which attest the presence of a people considerably advanced in civilization at some period in Ireland, such as Cyclopean buildings, sepulchral mounds containing stone chambers, mines, bronze instruments and weapons, must indicate that the society which flourished at that period, and which the known facts of history, should appear to be referable to some of the predecessors of the modern people of Scotland, and indicate a close affinity between the earliest inhabitants of Ireland and that antient people, by some referred to a Phoenician origin, whose vestiges of a similar kind abound throughout the south and western parts of Europe.

The Scotti were not builders in stone, at least in their civil edifices, nor did they use bronze implements. Their own tradition is that they came originally from Scythia, by which is meant the north-eastern part of central Europe, which appears to be confirmed by the fact that the ancient topography of the country, in districts where the Scottic invasion has not wholly obliterated it, points at the Welsh language as the nearest representative of that spoken by the antient inhabitants of Scotland, and the other chief distinctions which at present exist between the Irish and Welsh languages are referable to a Gothic or Northern European source.
The general conversion of the Irish Scots to Christianity took place in the earlier and middle portion of the fifth century. The great missionary who effected this was Patrick, who landed in Ireland on this mission in the year 432. Before this time Christianity had made some progress, but the mass of the people were heathens. The form of Christianity introduced by St. Patrick was the Roman-Catholic, in his doctrine and that of his successors for many centuries it is affirmed that there are no traces of those peculiar tenets which the Reformed churches rejected in the sixteenth century.

A considerable advance in civilization followed the introduction of the new religion. Greek and Roman literature got some footing among the clergy, and an improved system of architecture became requisite for religious edifices. The Irish round towers are now generally ascribed to an ecclesiastical origin. They date mainly from the sixth, seventh, and eighth centuries, which form perhaps the most prosperous epoch in the history of the country. From the end of the eighth century till the coming of the English, in a.d. 1170, the disputes of the petty princes of the country, and the frequent depredations of the Danes and other northern pirates, render the annals of Ireland a melancholy series of feuds and disasters.

Up to this time the government of the island had used its power to protect its subjects, and to certain subsidies and services from the petty kings of the provinces, and they in like manner levied contributions from the minor chiefs of territories. Dermod MacMurrough, king of Leinster, having seduced the wife of one of his subjects, and then fled from Ireland, was expelled from his dominions in 1168, and fled for succour to Henry II. king of England, who, having already obtained a grant of Ireland from pope Adrian IV., reserved to his own dominion the restoration of MacMurrough on receiving his oath of allegiance; but, being at that time engaged in a war with the French, he was unable personally to undertake the expedition. Several Welsh adventurers however, having obtained his licence to embark in that island, and raising an army, which they landed in the county of Wexford, in the month of May, A.D. 1170. The conquest of the entire island was soon effected. In 1174, the king, coming over in person, received the submission of the Irish monarch, and of almost all the provincial and petty kings, and in the same year had his title confirmed, and the discipline of the Irish and English churches assimilated at a general synod of the Irish clergy held at Cashel.

This kingdom was now portioned out among the Anglo-Norman conquerors, and with the introduction of English modes of tenure the creation of courts of law and appointment of executive authorities had their commencement. The twelfth year of the reign of king John, whose father and brother were held in great esteem by the king of England, is looked upon as the epoch to which the final division into counties is generally referred. This division appears to have embraced almost the entire of Ireland, although through subsequent reverses most of the counties in Ulster and Connaught ceased to be considered shire ground. These counties were chiefly owing to the excoriating powers enjoyed within their several territories by the great lords of the country, who finding the Irish customs more congenial to arbitrary authority, by degrees fell away from the exercise of the English law, and assumed the characters of despotic chieftains. In particular, the family of the De Burgo's in Ulster and Connaught, being released, by the murder of William earl of Ulster, in a.d. 1333, from the restraint which he had at one time over them, seized the better part of the latter province and assumed Irish names; while the northern native Irish recrossing the river Bann, beyond which they had hitherto been confined, drove the English out of the north-eastern parts of Ulster, and extended the pale in that direction to the county of Louth. In like manner the families of Desmond and Kildare, having possessed themselves of a great part of Munster and Leinster, introduced the Irish customs on that side, so that on the accession of king John VI. there was an inhabitable tract along the eastern coast in which the English law was fully recognised.

In this and the succeeding reigns of Elizabeth and James I. the English government having now the double motive of effecting a religious as well as a civil instruction in Ireland, applied themselves with great energy to the recovery of their authority, and, after a tedious series of rebellions and confiscations, succeeded at length, in the beginning of the seventeenth century, in making the entire province, Ireland proper, under the same government as the rest of the realm, and planting a numerous Protestant proprietary in Ulster. The Reformed church had already been established in a.d. 1535; but the great body of the native Irish still continued attached to the Roman Catholic faith.

In October, 1641, a rebellion, having for its object the overthrow of the new establishment and the restoration of the old proprietors to their estates, broke out among the native Irish, and was afterwards joined by the chief Roman Catholic nobility and gentry of the civil wars which ensued was the suppression of the Irish and Roman Catholic party, and a general confiscation of their lands.

On the accession of James II. and the prospect of a restoration of the Roman Catholic church, the party again rose to considerable power, and on king James retiring to Ireland after the revolution of 1688, they supported his cause through an arduous war of three years' continuance, until after the defeat of the Boyne and Aughrim, when they finally capitulated at Limerick on 3rd October, 1692. Extensive confiscations followed this civil war also. The military men and other more active members of the Roman Catholic party left the country, and entered into the service of the conqueror, and thus they very generally distinguished themselves by their fidelity and bravery. Those who remained, still constituting the bulk of the population of the island, were henceforth treated with extreme severity; yet, notwithstanding the liberties of that time enacted against Roman Catholics, the country generally prospered during the century of uninterrupted tranquillity that ensued. The example of the American and French revolutions however having created a democratic spirit among many of the northern Protestants, and some of them having taken up arms in the year 1798, led to another rising among the Roman Catholic peasantry of much the same character with those insurrections in which their ancestors had unfortunately before them been too frequently engaged. This rebellion, being likewise suppressed, led the way to the Act of Union, by which the parliament of Ireland, which had of late years enjoyed an absolute independence of all power but the crown, was merged in that of the United Kingdom, a.d. 1800.

The Irish Roman Catholics, who had greatly increased in wealth and numbers since the time of the Union, were in the year 1829 admitted generally to the political privileges enjoyed by Protestant dissenters. The Reform Act considerably added to their political power, and several exchanges are now in progress and operation, the general tendency of which is to give them a large share of political power in the state.

Population—Notwithstanding the numerous colonies of British who have from time to time settled in Ireland, the great bulk of the population is still of the native Irish race. The native Irish are of a warm and imaginative disposition, with much natural eloquence and a strong perception of humour; they are very hospitable, and individual in a very brave; the prevailing vices of the national character are improvidence and a disposition to riotous excitement. During the wars in the reign of Elizabeth they were reduced to considerably less than a million in number, but in the subsequent progress of the population they have increased in a much more rapid ratio than either their English or Scottish fellow-countrymen. The following table exhibits the numbers of the entire population at the several dates below:—

<table>
<thead>
<tr>
<th>Date</th>
<th>How ascertained</th>
<th>1669</th>
<th>1672</th>
<th>1695</th>
<th>1712</th>
<th>1727</th>
<th>1731</th>
<th>1744</th>
<th>1767</th>
<th>1777</th>
<th>1785</th>
<th>1794</th>
<th>1800</th>
</tr>
</thead>
<tbody>
<tr>
<td>1669</td>
<td></td>
<td>3,209,000</td>
<td>3,054,102</td>
<td>2,099,094</td>
<td>2,163,048</td>
<td>2,317,374</td>
<td>2,472,634</td>
<td>2,454,076</td>
<td>2,472,634</td>
<td>2,690,556</td>
<td>2,842,932</td>
<td>4,046,006</td>
<td></td>
</tr>
</tbody>
</table>
IRE

22

Date.  How ascertained.
1791  Hearth-money collectors  4,206,612
1792  Estimated by Dr. Beaufort  4,088,296
1793  Dr. Churchman's estimate  8,385,456
1791  Under Act 55 Geo. III. c. 120  5,801,287
1793  Under Act 1 Will. IV. c. 19  7,767,401
1794  [Estimated by the Commissioners on Public Instruction]
1737  [Estimated by Irish Railway Com.]

The distribution of this very large population is chiefly towards the eastern side of the island; the west and north-west are comparatively thinly inhabited. The general condition of the people is considerably improved of late years, but still there is a very numerous class of pauperity in the west and north-west whose state is extremely wretched. The average rate of wages for agricultural labourers throughout the entire country is about 8d. per day, and the average employment about twenty-two weeks of six working days each in the year. The classes into which the population was divided in 1831 appear in the census of that year as follows:—Families chiefly employed in agriculture, 884,339; ditto chiefly employed in trade, manufactures, and handicraft, 249,389; ditto not comprised in the preceding classes, 521,586; males, 3,796,370; females, 3,927,321; persons, forming 1,365,066 families, inhabiting 1,429,616 houses.

In the same year the number of agricultural occupiers employing labourers was 55,339; of occupiers not employing labourers 67,744; of male employed in agriculture, 567,441; of males, 20 years of age, employed in manufactures, 25,746; employed in retail trade or in handicraft as masters or workmen, 298,835; of capitalists, bankers, professional and other educated persons, 5,114; of labourers employed in labour not agricultural, 89,876; of other males 20 years of age, except servants, 110,595; of male servants 20 years of age, 54,142; of ditto under 20 years, 44,600; of female servants, 253,155.

Religion.—In 1834, according to the returns of the Commissioners of Public Instruction, there were in Ireland 6,431,008 Roman Catholics; 852,676 members of the Established church; 642,556 Presbyterians; 21,808 other Protestant dissenters; and 6254 whose religion could not be ascertained; being in the proportion of 41 Roman Catholics nearly to one Protestant of whatever denomination.

Education.—In 1834 there were in Ireland 9657 daily schools, being in the proportion of one school to each 924 of the entire population, educating 633,946 young persons; being the proportion of 7 9/10 per cent. of the entire population under daily instruction. Of these schools 5653 were supported wholly by payments from the children, and 4004 were supported wholly or in part by endowment or subscription. Of the latter class there were in the year 1832, in connection with the National Board of Education; 203 in connection with the Society for Discontenancing Vice; 115 in connection with Erasmus Smith's fund; 235 in connection with the Kildare-street Society, and 618 in connection with the London Hibernian Society. There is a University at Dublin, a Roman Catholic College at Maynooth, and various superior establishments for education in other towns. [BELFAST; DUBLIN; &c.]

Crime.—During the year 1836 there were 23,891 persons committed for trial or bailed, of whom 7769 were charged with offences against the person; 671 with assaults on property committed with violence; 6593 with offences against property committed without violence; 500 with murder, robbery, or larceny; 6744 and breaches of the peace; and 8144 with other offences not included in the above classes. The proportion of the offenders to the entire population was 1 in 325, and the male offenders were to the female as 0'82 to 0'18. Of the total number of offenders 6744 males and 1984 females could read and write; 3895 males and 912 females could read only; 7435 males and 2955 females could neither read nor write; and of 1542 males and 275 females the conviction could not be ascertained. The total number of convictions in that year was 18,110.

Productive Economy.—Agriculture.—The agricultural production of Ireland was estimated, in the year 1832, at 36,000,000l. per annum, raised off 1,450,373 acres. This failure, however, by one hand, has not in any degree, produced the amount of produce yielded by an equal area in Great Britain; and yet in the latter country there are only two agricultural labours of every five for the same quantity of land in Ireland. Hence it is evident that this deficiency has not proceeded from a want of capital, and was however observable both in the quantity and quality of Irish agricultural produce within the last ten years. The increase in quantity will be apparent from the following table of the comparative exports of some of the principal articles of such produce in the years 1825 and 1835:

<table>
<thead>
<tr>
<th>Commodities</th>
<th>1825</th>
<th>1835</th>
<th>Increase between those Periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow and Oxen number</td>
<td>63,524</td>
<td>98,150</td>
<td>34,626</td>
</tr>
<tr>
<td>Sheep</td>
<td>6,140</td>
<td>6,255</td>
<td>115</td>
</tr>
<tr>
<td>Pig</td>
<td>27,191</td>
<td>52,482</td>
<td>25,291</td>
</tr>
<tr>
<td>Horse</td>
<td>39,019</td>
<td>61,191</td>
<td>22,172</td>
</tr>
<tr>
<td>Dairies</td>
<td>184,819</td>
<td>198,846</td>
<td>14,027</td>
</tr>
<tr>
<td>Wheat, qrs.</td>
<td>290,340</td>
<td>235,797</td>
<td>-54,543</td>
</tr>
<tr>
<td>Salt</td>
<td>15,799</td>
<td>8,704</td>
<td>-7,095</td>
</tr>
<tr>
<td>Oatmeal, cwt.</td>
<td>469,194</td>
<td>599,940</td>
<td>130,746</td>
</tr>
<tr>
<td>Provision and Ham</td>
<td>265,300</td>
<td>69,900</td>
<td>-195,400</td>
</tr>
<tr>
<td>Beacos and Hams</td>
<td>388,370</td>
<td>379,111</td>
<td>9,259</td>
</tr>
<tr>
<td>Bacon</td>
<td>604,283</td>
<td>370,172</td>
<td>-234,111</td>
</tr>
<tr>
<td>Land</td>
<td>26,501</td>
<td>28,845</td>
<td>2,344</td>
</tr>
<tr>
<td>Salt</td>
<td>23,987</td>
<td>33,996</td>
<td>10,009</td>
</tr>
<tr>
<td>Eggs (cases)</td>
<td>3,275</td>
<td>3,535</td>
<td>260</td>
</tr>
<tr>
<td>Feathers, cwt.</td>
<td>10,868</td>
<td>13,609</td>
<td>2,741</td>
</tr>
<tr>
<td>Feathers, cwt.</td>
<td>6,623</td>
<td>32,636</td>
<td>26,013</td>
</tr>
<tr>
<td>Hides and Colours</td>
<td>57,660</td>
<td>45,831</td>
<td>-11,829</td>
</tr>
<tr>
<td>Wool, Sheep and Hides</td>
<td>63</td>
<td>1,240</td>
<td>1,177</td>
</tr>
<tr>
<td>Linen Flax and tow</td>
<td>55,863</td>
<td>69,980</td>
<td>14,117</td>
</tr>
<tr>
<td>Linen Flax and tow</td>
<td>30,600</td>
<td>30,700</td>
<td>100</td>
</tr>
</tbody>
</table>

The earnings of the agricultural labouring classes, including occupiers labouring on their own land, in 1836, are estimated at 6,844,500l.

The value of the peat annually raised from the bogs for fuel is very considerable. At 35 kishes or loads per family, which is the estimate of Mr. Wakefield, averaging 9d. per kish, the value of the quantity required for fuel in 1831, calculating only on the families employed in agriculture, would be 160,694l.; but this is probably too low an estimate, as it only exceeds by about 200,000l. the value of the imported and native coal consumed in the same time.

Mining.—The annual average produce of the mines of coal in 1836 amounted to 1,575,984 quarters, of which about 150,000l. is the produce of the mines worked by other parties about 220,000l. The export of lead and copper ore in 1833 amounted to 477,660 cwt's, of an estimated value of 179,388l. The mines and quarries at present open are not however worked to their full extent; this branch of industry is indeed still in its infancy in Ireland.

Fisheries.—In the general coast fishery in the year 1836 there were employed—decked vessels 215, tonnage 7099 tons; half-decked ditto 878, tonnage 10,932 tons; open sail-boats 1813, tonnage 9718 tons; and row-boats 7864 total number of fishermen 54,119; showing a considerable decrease since 1830, when the number of fishermen employed was 64,771. The earnings of each fisherman having a boat and wages estimated at from 9l. 6d. to 10l. 10s. per week on an average through the year would give the nett profits of the produce for 1836 at 527,650l. The gross annual produce of the coast and river salmon fisheries do not amount in all to 10,000l.

The value of 450 females of the unbleached linens sold in the several counties of Ulster in the year 1824 was 2,109,305l., and in all Ireland for the same year 2,606,697l. Since that time there is no authentic return; but the introduction of linen-yard spinning-machine has latterly given the linen trade an extraordinary impetus in the northern counties of Ulster. The exports of linen in the year 1835 amounted to 70,299,572 yards, of an estimated value of 3,725,054l., being an increase on the linen export of 1834 of 15,093,557l.

The cotton trade is carried on to a considerable extent in
the same district, and in one large establishment in the county of Waterford; but it has latterly declined, and many of the mills originally designed for the spinning of cotton have been turned to the manufacture of linen yarn, the demand for which is much greater than the present means of production can meet. The export of cotton fabrics, which in 1825 amounted to 10,567,438 yards, in 1835 was only 1,658,688 yards, estimated at a value of 13,285l. In the latter year there was however an export of cotton in other forms of manufacture to the amount of 132,880l.

Since the year 1823 the woollen trade has declined considerably. In that year there were in and about Dublin forty-five establishments, the annual value of the goods produced in which, if estimated at present prices, would be about 200,000l. The total value of the woollens now manufactured in the same district is about 90,000l. In the districts of Cork, Kilkenny, and Carrick-on-Suir, where the woollen trade formerly flourished, the present value of the woollens annually manufactured does not exceed 20,000l.; and the flannel trade of Wicklow and Wexford, which in 1822 was estimated at 56,000l., for the annual value of its produce, may now be considered as extinct. The manufacture of worsted and stuff articles is the only branch of this trade which has increased within the last sixteen years: it is now carried on to a considerable extent at Mount Mellick and Abbeyfeale in the Queen's County. Such of the mills as remain is however considered to be at present in a healthy state, and reasonable hopes are entertained of a progressive improvement. The value of the different woollen manufactures exported in 1835 was 49,128l.; a considerable portion of this export was to the south of England, which now more closely resembles the Irish than to the northern English manufacturer. The silk manufacture is also much decayed; the export of silk fabrics in 1835 amounted to 21,740l.

In grinding, malting, brewing, and distilling, a great advance has been made in Ireland within the last fifteen years. The number of corn-mills in Ireland in 1835 was 1882; of corn-kils, 2296; of distilleries, 95; of rectifying distilleries, 19; of breweries, 236; of paper manufactories, 57; of glass-works, 6; and of tobacco factories, 291. The export of oatmeal, flour, and wheatmeal, which now amounts to nearly one million and a half sterling annually, has grown up almost wholly of late years; so also the valuable export trade in porter.

Steam Power.—There were, in 1835, 151 steam-engines of from 1 to 100 horse-power each, employed in various manufacturing operations in the towns and neighbourhoods of Belfast, Clonmel, Cork, Dublin, Galway, Kilkenny, Limerick, Londonderry, Waterford, and Portlaw. Of those the first was erected in Belfast in the year 1806. In addition to these there are upwards of 90 steam-vessels with engines of from 20 to 300 horse-power engaged in the British coast and canal traffic. Cork is now a station for steamers sailing to North America, and a steam communication is kept up during the summer months between Bordeaux and Dublin, and Hâvre and Belfast.

Commerce.—Inland Traffic.—The inland traffic of Ireland is almost wholly carried on either by high road or canal, there being but one railway of five miles in length at present in operation in the country. Another line of seven miles in length is however now in process of completion between Belfast and Lisburn. The extent of the various lines of inland navigation is as follows:

<table>
<thead>
<tr>
<th>Type of Traffic</th>
<th>Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand canal from Dublin to Ballimiao, with its branches</td>
<td>164</td>
</tr>
<tr>
<td>Royal canal from Dublin to Tarn Моrris, with its branches</td>
<td>99</td>
</tr>
<tr>
<td>Lower Shannon navigation</td>
<td>44</td>
</tr>
<tr>
<td>Limerick navigation, river and canal</td>
<td>15</td>
</tr>
<tr>
<td>Middle Shannon, navigation</td>
<td>14</td>
</tr>
<tr>
<td>Upper Shannon navigation</td>
<td>60</td>
</tr>
<tr>
<td>Lagan navigation, river and canal</td>
<td>62</td>
</tr>
<tr>
<td>Newry navigation, river and canal</td>
<td>16</td>
</tr>
<tr>
<td>Tyrone navigation, river and canal</td>
<td>114</td>
</tr>
<tr>
<td>Lower Boyne navigation, river and canal</td>
<td>38</td>
</tr>
<tr>
<td>Slaney navigation, river and canal</td>
<td>16</td>
</tr>
<tr>
<td>Barrow navigation, river and canal</td>
<td>78</td>
</tr>
</tbody>
</table>

In addition there is now in progress the Ulster canal, joining the waters of Lough Neagh and Lough Erne, of which there are completed 88l.

Being in all about one-fourth of the similar means of internal traffic existing in 1835 in an equal area in Great Britain.

The general direction of the traffic of Ireland is eastward, of the external traffic almost wholly so. With the exception of the transverse lines of the Royal and Grand Canal, the great bulk of the inland traffic lies towards and along the eastern coast from Londonderry to Cork inclusive.

Carrying Traffic.—The means of external traffic possessed by Ireland amount to less than one-fourth of those of England, and to rather a third of those of Scotland. The following table exhibits the number of vessels, with the amount of their tonnage, and the number of men and boys usually employed in navigating the same that belonged to the several ports of Ireland in the years below:

<table>
<thead>
<tr>
<th>Vessels</th>
<th>Tonnage</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>On the 31st December, 1834</td>
<td>1536</td>
<td>119,398</td>
</tr>
<tr>
<td>&quot; &quot;</td>
<td>1835</td>
<td>1267</td>
</tr>
<tr>
<td>&quot; &quot;</td>
<td>1836</td>
<td>1365</td>
</tr>
</tbody>
</table>

Here the proportion of scame to tonnage is about 1 to 14; in the merchant-service of England the proportion is as 1 to 18 nearly. This difference is to be accounted for by the superior size and better management of the English vessels, which require less manual labour. The general navigation of Ireland and its progress appear from the subjoined table, showing the number of vessels, with the amount of their tonnage and men (including their repeated voyages), that entered inwards and cleared outwards at the several ports of Ireland, from and to all parts of the world, during each of the years below:

<table>
<thead>
<tr>
<th>Year ending</th>
<th>British and Irish Vessels</th>
<th>Foreign Vessels</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1835</td>
<td>15,691</td>
<td>1,621,410</td>
<td>94,706</td>
</tr>
<tr>
<td>1836</td>
<td>15,418</td>
<td>1,621,603</td>
<td>97,164</td>
</tr>
<tr>
<td>1837</td>
<td>15,565</td>
<td>1,662,264</td>
<td>102,324</td>
</tr>
</tbody>
</table>

Shipping entered inwards in Ireland, from all parts of the World.

<table>
<thead>
<tr>
<th>Year ending</th>
<th>British and Irish Vessels</th>
<th>Foreign Vessels</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1835</td>
<td>10,354</td>
<td>1,180,135</td>
<td>71,900</td>
</tr>
<tr>
<td>1836</td>
<td>10,354</td>
<td>1,210,327</td>
<td>76,842</td>
</tr>
<tr>
<td>1837</td>
<td>10,148</td>
<td>1,251,855</td>
<td>80,269</td>
</tr>
</tbody>
</table>

Shipping cleared outwards from Ireland, to all parts of the World.


### Imports and Exports—Summary of the Imports and Exports of Ireland for the year 1835, including the coasting trade.

<table>
<thead>
<tr>
<th>Counties</th>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antrim</td>
<td>210,700</td>
<td>1,700,000</td>
</tr>
<tr>
<td>Armagh</td>
<td>1,400,000</td>
<td></td>
</tr>
<tr>
<td>Clare</td>
<td>1,300,000</td>
<td></td>
</tr>
<tr>
<td>Connaught</td>
<td>600,000</td>
<td></td>
</tr>
</tbody>
</table>

**Implemented:**
- Ireland is represented in the imperial parliament by 165 members of the House of Commons, and 28 temporal and 4 spiritual peers in the House of Lords. The temporal peers are elective representatives for life; the spiritual peers take the office in rotation.

**Civil Divisions:** Ireland is divided into four provinces and thirty-two counties. Connaught contains 5 counties, Munster 6 counties, Ulster 9 counties, and Leinster 12 counties. The counties are divided into baronies, and the baronies into townlands.

- The following is a list of the counties of Ireland, with the population according to the last census, and the area in square miles:

<table>
<thead>
<tr>
<th>County</th>
<th>Population</th>
<th>Sq. Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Armagh</td>
<td>325,015</td>
<td>1,107</td>
</tr>
<tr>
<td>Antrim</td>
<td>220,135</td>
<td>465</td>
</tr>
<tr>
<td>Clare</td>
<td>28,988</td>
<td>330</td>
</tr>
<tr>
<td>Cavan</td>
<td>227,933</td>
<td>711</td>
</tr>
<tr>
<td>Connaught</td>
<td>258,320</td>
<td>1,141</td>
</tr>
<tr>
<td>Cork</td>
<td>810,732</td>
<td>2,659</td>
</tr>
<tr>
<td>Donegal</td>
<td>289,150</td>
<td>1,035</td>
</tr>
<tr>
<td>Down</td>
<td>352,010</td>
<td>951</td>
</tr>
<tr>
<td>Dublin</td>
<td>380,167</td>
<td>294</td>
</tr>
<tr>
<td>Fermanagh</td>
<td>149,763</td>
<td>640</td>
</tr>
<tr>
<td>Galway</td>
<td>414,654</td>
<td>2,033</td>
</tr>
<tr>
<td>Kerry</td>
<td>264,626</td>
<td>1,670</td>
</tr>
<tr>
<td>Kilkenny</td>
<td>106,424</td>
<td>597</td>
</tr>
<tr>
<td>King's County</td>
<td>144,225</td>
<td>714</td>
</tr>
<tr>
<td>Leitrim</td>
<td>141,544</td>
<td>576</td>
</tr>
<tr>
<td>Limerick</td>
<td>315,555</td>
<td>794</td>
</tr>
<tr>
<td>Londonderry</td>
<td>222,010</td>
<td>794</td>
</tr>
<tr>
<td>Longford</td>
<td>112,558</td>
<td>357</td>
</tr>
<tr>
<td>Leitrim</td>
<td>124,846</td>
<td>322</td>
</tr>
<tr>
<td>Mayo</td>
<td>366,328</td>
<td>1,559</td>
</tr>
<tr>
<td>Meath</td>
<td>176,826</td>
<td>899</td>
</tr>
<tr>
<td>Meath, West</td>
<td>142,280</td>
<td>578</td>
</tr>
<tr>
<td>Monaghan</td>
<td>195,536</td>
<td>493</td>
</tr>
<tr>
<td>Queen's County</td>
<td>145,870</td>
<td>744</td>
</tr>
<tr>
<td>Roscommon</td>
<td>244,307</td>
<td>870</td>
</tr>
<tr>
<td>Sligo</td>
<td>171,755</td>
<td>638</td>
</tr>
<tr>
<td>Tipperary</td>
<td>402,564</td>
<td>1,305</td>
</tr>
<tr>
<td>Tyrone</td>
<td>304,468</td>
<td>1,210</td>
</tr>
<tr>
<td>Waterford</td>
<td>177,055</td>
<td>618</td>
</tr>
<tr>
<td>Wexford</td>
<td>189,713</td>
<td>627</td>
</tr>
<tr>
<td>Wicklow</td>
<td>121,558</td>
<td>607</td>
</tr>
</tbody>
</table>

- Each of the 32 counties returns 2 members to the House of Commons, and the University of Dublin 2 members.
- List of the cities and boroughs which return members to the House of Commons:
  - Armagh
  - Athlone
  - Bandon
  - Belfast
  - Carrickfergus
  - Cashel
  - Clonmel
  - Cork
  - Downpatrick
  - Drogheda

- In the Population Returns the number of parishes in each county is not stated; but it appears from some Diocesan Returns made in 1834 that the total number of parishes in the four provinces is 23,746; that is, for the Province of Armagh, 639; Dublin, 624; Cashel, 791; and Tuam, 275.

**Ecclesiastical Divisions:** Ireland is divided into four ecclesiastical provinces and thirty-two dioceses. These di-
visions, although equal in number and corresponding in general situation, are in no instance co-extensive with the civil districts. The provinces are Armagh on the north, containing a diocese of *Clonfert,* Kilmore, Armagh, Meath, Armagh, *Dromore,* Down, Connor, *Derry,* *Ra-
phoe; Traim on the west, containing the dioceses of *Kil-
macduagh,* *Clonforf,* *Elphin,* Tuam, *Kilkaha,* *Achonry,* *Dur-
ham,* *Limerick,* containing the dioceses of *Kildare,* Leighlin, Dublin, Ferns, *Ossory;* and *Cashel* on the south, containing the dio-
ceses of *Waterford,* *Lismore,* Cashel, Emly, Cloyne, *Cork,* Ross, Ardrefit and Aghadoe, Limerick, Killaloe, Killenora. The dioceses are divided into counties or townships. Courts of synod and council are held in some of these counties, and the synods have become void, to be united to the archiepiscopal sees of Armagh and Dublin respectively. The present ecclesiastical establishment consists of four arch-
bishops and ten bishops, six of the bishoprics mentioned in the act having new lapses.

The Roman Catholic establishment consists of four arch-
bishops and twenty-three bishops, their provinces and dio-
ceses being for the most part co-extensive with those of the

The Presbyterian body are divided into two sects: one, by
much the more numerous, being in connection with the
synod of Ulster, which agrees in doctrine and government with the church of Scotland; and the other with the synod of Munster and Remonstrant synod, among whom Uni-
tarian opinions are prevalent. The Seeding body have
also their synod.

The clergy of the Established church derive their re-
venue from church lands and tithes; those of the Presby-
terian church from parochial stipends and an annual grant
government called the regium donum; the Roman Cath-
ic church is supported wholly by dues paid by the people.

<table>
<thead>
<tr>
<th>1799</th>
<th>1810</th>
<th>1820</th>
<th>1837</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customs</td>
<td>832,046</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>Excise</td>
<td>635,656</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Post-Office</td>
<td>47,449</td>
<td>19</td>
<td>3</td>
</tr>
<tr>
<td>Stamps</td>
<td>56,902</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>Total (gross)</td>
<td>£1,572,065</td>
<td>18</td>
<td>84</td>
</tr>
</tbody>
</table>

The rate per cent. for which these gross receipts have been
been fixed by the several ministries of late years.

In 1836 it was 117. 13. 4d., including the expenses of the post-office department. The net proceeds in that year were
4,165,910. 17. 5d.

The general contribution of Ireland to the imperial re-
venue is however considerably greater than the amount
appearing on these returns, in consequence of the large im-
portation into that country of taxable commodities which
have already paid duty in Great Britain.

County Duty. The cost of making, repairing, and main-
keeping highways, bridges, roads, &c., and keeping up the
general machinery for the administration of justice and
preservation of the public health, is supported by local
assessments levied by the grand juries of the several
dioceses, the general assessments amounting to about 80,000.
for the whole country.

A good account of all the sources from which information
in Irish affairs might be drawn up to the year 1724 is given
in Nicholson's 'Irish Historical Library,' 6vo., Dublin, 1724.

Since that time various general histories have been
published by Leland, O'Halloran, MacGeoghegan, Plow-
den, Moore, and others, with statistical accounts of most of
the counties by compilers employed by the Royal Dublin
Society. The Royal Irish Academy have latterly thrown much light on the antiquities and
natural history of the country, and numerous Parliamentary
Reports and Papers have from time to time added to our
statistical information. A geographical Map and Memoir,
recently published by the Commissioners on Railways, have
also supplied a desideratum long felt by writers on Irish
P. C., No. 791.

IRISH TOPONYMICS. The more particular authorities are given
under the heads of several counties.

IRELAND. NEW. [NEW IRISH.]

IRENA. [ONOLINE.]

IRENÆUS, SAINT, bishop of Lyons in Gaul, was a pupil of Polycarp, in Asia Minor (Iren. adv. Her. ii. 3, §4; Eusebius, Hist. Eccl. v. 29), and a presbyter of Polycarp, bishop of Lyon. He carried a letter from the church of Lyon to Eleutherus, bishop of Rome, respecting some disputes which existed between them, in which he is honourably mentioned. On the martyrdom of Polycarp, at the age of ninety, in 177 A.D., Irenæus was elected bishop of Lyon. He discharged the duties of his office with exemplary diligence and faithfulness, and is said to have been the means of converting many pagans to the Christian reli-
fion. The place of his bishopric is most probably
scalend from his name that he was a Greek, and from his
eyth acquaintance with Polycarp that he was a native of
Asia Minor. Critics differ considerably respecting the date of his birth: Bedwell places it about a.D. 57, Grube about
A.D. 169, Du Pin about A.D. 140, and Tillemon about A.D.
120. It is commonly supposed that he suffered martyrdom
in the beginning of the third century; but it has been
argued by many critics, from the silence of Tertullian, Eus-
beius, and most of the early fathers, that he was probably
incorrect.

With respect to the works of Irenæus, we learn from
Eusebius (Hist. Eccl. v. 20) that he wrote several letters
against those which at Rome contended the true doctrine of
the church; one to Blase, concerning schism; another to
Florinus, concerning the monarchy, or that God is not the
VOL. XIII.-E
author of evil; and concerning the number eight.' Eusebius also mentions (v. 26) 'a discourse of Irenæus against the Gentiles, entitled, Concerning Knowledge; another, inscribed to a brother named Marcianus, being a demonstration of the apostolical preaching; and a little book of divers disputations.' Irenæus also wrote a letter to Victor, bishop of Rome, concerning the controversy about the time of holding Easter; and also 'Five Books against Heresies.'

The last work is still extant; but all the rest have perished, with the exception of a few fragments. The original Greek of the first five books, which Irenæus has also been lost; we possess only a Latin translation of it, written in an uncouty style, which was made, according to Dodwell's computation (Dissert. Iren. v. 9, 10), about A.D. 385. This rendering renders the work of little value in ascertaining the readings of the Greek text. Irenæus, since the Latin translator appears to have quoted the text of Scripture according to the Latin version then in use.

It is difficult to determine at what period the 'Five Books against Heresies' were written, but they all appear to have been composed after Irenæus became bishop of Lyon, and to have been published at different times. Irenæus was well acquainted with heathen literature and the doctrines of the heretics of his time. His work is very valuable in an historical point of view, and has been highly commended by most of the fathers; though Photius (Bibl. c. 120) gives rather a different opinion of it, thinking 'that the purity of the faith with respect to ecclesiastical doctrines is adulterated by the false and spurious reasoning of Irenæus.'

Irenæus was the most diligent collector of apostolical traditions. He informs us, in many parts of his work, that he was well acquainted with several persons who had been intimate with the apostles. Many of his traditions are of a very curious kind. He affirms that Christ was at least 50 years old at the time of his crucifixion, and he asserts the most extravagant opinions with regard to the Millennium. Middleton, in his 'Free Inquiry' (p. 45-52), has given an interesting account of many of the opinions of this father.

The life of Irenæus has been written by Gervais, Paris, 1723. His works have been published by Erasmus, 1526; by Feuardent, 1546; by Grabe, 1792; by Massuet, 1710; and by Pfaff, 1734. Some of the fragments published for the first time by Pfaff are supposed by Lardner ('Credibility of the Gospel History,' Works, ii., p. 199-191, ed. of 1831) to be spurious.

IRETON, HENRY, the eldest son of German Iredon, of Attenton, in Nottinghamshire, was born in 1610. He was entered at Trinity College, Oxford, in 1626, and having taken the degree of bachelor of arts, became a student of the Middle Temple. His legal studies were interrupted by the outbreak of the civil war; he entered the parliamentary army, and soon made such a proficiency in the military art, that it has been asserted that Oliver Cromwell learned its rudiments from him. In 1646 he married Bridget, Cromwell's eldest daughter, by which connexion and his own merit he gained a commission, first of captain of horse, and almost immediately afterwards that of colonel. But distinguished himself in the battle of Naseby, was taken prisoner by the royalists, but made his escape. Iretón was perhaps more than any other man the cause of king Charles's death; by intercepting a letter, he is said to have discovered that it was the king's intention to destroy him and Cromwell, and from that time he rejected any accommodation: he attended most of the sittings of the regicide court, and signed the warrant for Charles's execution. On the establishment of the Commonwealth he was appointed to go to Ireland, next in command to Cromwell. He was made president of Munster, and afterwards lord-deputy of Ireland. The greater part of the country submitted to him from fear of his cruelty, without striking a blow. While in the height of his success he fell sick, before Limerick, with the plague, of which he died on the 15th of November, 1651. His body was landed at Bristol, and lay in state at Someret House. On an achievement over the gate of Someret House was the motto, 'Dulce et decorum est pro patria mori.' Irenæus also wrote a letter to Victor, bishop of Rome, concerning the controversy about the time of holding Easter; and also 'Five Books against Heresies.'

He left one son, Henry, and four daughters. Iretón was revered by the republicans as a soldier, a statesman, and a saint. He was called the 'scribe,' from his skill in drawing up declarations, petitions, and ordinances. His antagonist allowed him to be an able but not a virtuous statesman; indeed, he appears to have been the most artful designing, and deliberate man of his party. He refused a grant of 2000l. a year, which was offered to him out of the confiscated estate of the duke of Buckingham; and after his death the parliament, out of gratitude for his services, settled it upon his widow and children. (Noble's 'Memorials of the Cromwell Family,' vol. ii. No. 27.)

IRENÉUS. [YRIANÉS.]

IRENAÉUS. A natural order of endogenous plants, usually with equitant leaves, and a rhizoma or cormus for their stem, but more particularly characterized by having three stamens, the anthers of which are turned outwards, and not towards the ovary. The genera are numerous, and some not well defined; they inhabit the temperate parts of the world in preference to the hottest, where they are comparatively rare. The Iris and Crocus are representatives of the predominant northern form of the order, as Gladiolus and Iris are of the genera prevalent in the southern hemisphere. All the species are sufficiently ornamental to deserve cultivation, and many are of striking beauty.
Iridium.—The protactidal of iridium is obtained by transmitting chlorine gas over pulverulent iridium heated to incipient redness: at a full red heat the chlorine is expelled. It is insoluble in water, and sparingly dissolves by acids in nascent chlorine; but, when the decomposed protactidal is digested in hydrochloric acid a solution is obtained which appears to be the protactidal dissolved in hydrochloric acid.

It is obtained in two forms, 1 equivalent of chlorine 26, and 1 equivalent of iridium 98, making 134.

Sesqui chloride of iridium may be obtained by calcining iridium with nitre, digesting the product in nitric acid, and, after washing, by dissolving it in hydrochloric acid. This chloride has so dark a yellowish-brown tint, that a small quantity renders water opaque. It yields by evaporation a dark-coloured, uncrystallizable, deliquescent mass. It consists of 14 equivalent of chlorine 54, and 1 equivalent of iridium 98, making 152.

Bichloride of iridium is formed by heating the sesqui-chloride in nascent chlorine. Like the preceding, it yields by evaporation a dark-coloured deliquescent mass, which at 160° loses chlorine and returns to the state of sesqui-chloride.

The terechlore of iridium has not been obtained in a separate state. It is of a rose-red tint.

Iridium combines with carbon when a piece of this metal is held in the flame of a spirit lamp. The resulting compound consists of about 19° of carbon, and 50° of iridium.

No other compounds of iridium are much known: it has however been inferred, from the colour of the precipitates formed, and the addition of hydrochloric acid to the preceding chlorides, that there are corresponding sulphhydrates.

Iris. [Eye; Rainbow.]—Iris is an inflammation of the iris, the membrane that surrounds the pupil of the eye. [Eye.] It most frequently occurs after the use of opium or morphia, but it sometimes follows the exposure of the eye to an intense light, or is produced by external injury, as the wound which is made in the operation for cataract, &c.

Iritis is principally characterized by an effusion of lymph, both into the substance of the membrane, producing a peculiar dullness of its colour, and on its surface in the form of small masses which adhere at the edge of and over the whole of the pupil. If the eye is at the same time very bright and the pupil is closely contracted; there is redness of the conjunctiva, and a zone of a bright pink colour is usually seen surrounding the margin of the cornea.

Iritis is very likely to be followed by adhesions to the adjacent parts, by the lymph which is deposited upon it becoming organized, and having its vessels united with theirs; in which case, irregularity in the form of the pupil, a loss of its power of contracting and dilating, or even its whole complete closure, or obliteration, with corresponding degrees of obscurity of vision or total blindness, may ensue. These results may be produced in a few days; and the treatment must therefore be prompt and vigorous. Blood must be freely and sometimes repeatedly drawn from the arm, or by cupping and leeches from the head or neck; mercury must be administered in frequent and full doses till salivation is produced, and belladonna should be applied to or around the eye, to produce dilatation of the pupil and thus prevent its being closed.

IRUKTSK. [Situated.]—Iron. Of all the metals iron is the most widely diffused, the most abundant, and the most useful. It is found not only intermixed with soils, and contained in rocks and mineral springs, but also in animal and vegetable bodies, and also in mineral waters.

Iron occurs rarely, if indeed at all, in nature in the metallic state, for almost the whole of it that has been found occurs as meteoric iron containing nickel, or in meteoric stones. It has however been stated that it has been discovered in situ near Canan in the United States; it there occurs in a vein, two inches wide, in chlorite schist, filled with native iron. It appears that this iron is traversed by a large graphite. Its specific gravity is 3-4 to 6-71. The Uralian Mountains yield a kind of native iron which is accompanied with platinum.

The greatest quantity of iron is found either combined with oxygen, oxygen and carbonic acid, or with sulphur; the last mentioned is not however worked as an ore. The best iron ores are oxides, which occur in primitive countries, where they generally form very large beds; such are those of Sweden: but the greater part of the iron ore of Britain is an impure carbonate.

The properties of iron are, that it is greyish-white with a tint of blue; it is extremely ductile, so that it may be drawn into wire finer than the human hair, but it cannot be beaten into very thin leaves. It is of all metals the most tenacious, for a wire 5757 of a line in diameter is capable of supporting a weight of about 540 lbs.

Iron is susceptible of a high polish. It is combustible when minutely divided, as in the state of filings, which is shown by sprinkling them in the flame of a spirit lamp. It is very hard at common temperatures, and this property may be increased by its being heated and then suddenly cooled; it then however becomes brittle. It requires a most intense heat to melt it, but when heated to redness it becomes soft and pliable, and possesses the valuable property of teething, that is, two pieces of red-hot iron may be made to unite by hammering. Its texture is fibrous. Its specific gravity is about 777, but this varies in some degree according to the extent to which it has been drawn, rolled, or hammered, and it is increased by fusion. Iron, like another steel, is capable of being rendered permanently magnetic, a property which no other metal possesses but nickel: when heated to reddness this property is lost, and a lodestone suffers the same loss just below visible ignition; while a steel magnet placed in the refrigerator when subjected to the temperature of boiling almond oil. Iron has great affinity for oxygen and sulphur, and some other elementary bodies, and combines with them in various proportions.

Having now stated the general properties of this metal, we proceed to describe those compounds which occur naturally containing the largest quantity of it, and among these are of course the various ores of this metal; and we shall prefix a short account of the more remarkable masses which have occurred of late.

Meteoric Iron.—There have been found in different parts of the earth large masses of native or metallic iron, of the
STRUCTURE FIBROUS, radiating, opaque. Specific gravity 4·7 to 5. Lustre externally, sometimes metallic, sometimes dull; internally, nearly dull. Colour externally red; greyish red, &c., internally, and streak red. It occurs in large quantities in Ural mountains and in other parts of Great Britain and Europe. According to D'Aubuisson it consists of

- Peroxide of iron... 94
- Sulfur... 80
- Lime... 1
- Water... 3

Brown Hematite; Hydrous Oxide of Iron; Brown Iron Ore.—Occurs in attached crystals and massive prisms. Primary form a right rhombic prism. Cleavage parallel to the short diagonal; fracture uncertain. Hardness 5·0 to 5·5. Specific gravity 3·93; lustre adamantine; nearly opaque; translucent. Colour brown of various shades. Streak yellowish brown. Occurs in Cornwall.

Massive Varieties.—Globular, reniform, and some of the varieties of brown and yellow clay-iron-stone. Stlassitic, structure fibrous, or fibro-lamellar. Sometimes occurs in pseudomorphous crystals. It occurs in most parts of the world. Analysis by D'Aubuisson:

- Phosphorus. Compact
  - Peroxide of iron... 92
  - Water... 1
  - Oxide of manganese... 7
  - Silica... 1
  - Lime... 2
  - Carbonate of iron... 89
  - Carbonate of iron... 89

Carbonate of Iron; Brown Spars; Spathose Iron Ore.—This occurs in attached crystals and massive. Primary form a rhomboid. Cleavage parallel to the primary planes, distinct. Fracture imperfect conchoidal; hardness 3·5. 4·5; specific gravity 3·6 to 3·89; translucent; almost opaque; lustre vitreous, inclining to pearly; colour white, yellow, red, and brown of different shades.

Massive Varieties: tabular, structure fibrous; botroidal and fibro-lamellar. There is sometimes a specimen known as spathose spherulite; structure fibrous, diverging; amorphous, structure foliated; granular; compact. Found in Cornwall, Scotland, and Ireland, and in other parts of Europe; and also in America.

Before the blowpipe is blackened and becomes magnetic, but does not fuse; in the reducing flame it colours brown, and in the oxidising yellow; dissolves in acids with effervescence. Analysis, by Beudant, of the hexahedral variety:

- Carbonic acid... 38·72
- Water... 59·97
- Oxide of manganese... 0·39
- Lime... 0·92

Clay Iron-Stone, or Urgilaceous Iron Ore, consists essentially of carbonate of iron mixed with various proportions of earthly matter; on an average carbonate of iron forms about one-third of the abundant clay-iron-stone of England, Wales, and Scotland. It occurs in beds and in coal deposits; it is found sometimes in globular masses, and also columnar. Although various other minerals occur containing large quantities of iron, yet the above-described contain almost all the ores which are extensively used in the manufacture of iron. Other ferruginous compounds have been already described under arbitrary names, and others still remain to be noticed in alphabetical order.

Carburet of Iron; Graphite. [Anthracite.]

Sulphur and Iron exist in combination in enormous quantities; the compounds which it forms are called magnetic iron pyrites, iron pyrites, and white iron pyrites.

Magnetic Iron Pyrites, Protosulphure of Iron, occurs in embayed, terrestrial crystals and massive; primary form a rhomboid; cleavage parallel to all the planes of a regular hexagonal prism; fracture uneven, sometimes conchoidal; hardness 3·5 to 4·5; scratches calcareous spar, and is scratched by felspar; specific gravity 4·63; opaque; lustre metallic; colour bronze yellow mixed with red; streak greyish black; obeys the magnet but feebly; soluble in dilute sulphuric acid; when exposed to the blowpipe on charcoal is converted into oxide of iron; occurs at Kingsberg in Norway and Androsberg in the Hartz. Analysis by Houtchett:
**Massive Varieties** amorphous; structure foiliated, granular, or compact; found in Cornwall, Wales, Germany, North America, &c.

**Iron Pyrites; Martial Pyrites; Pervulphuret, or bisulphuret, of Iron.**—Occurs in attached and imbedded crystals, and massive; primary form a cube; cleavage parallel to the primary faces, distinct less so parallel to the planes of the octohedron; fracture uneven, sometimes conchoidal; hardness 6° to 6½; scratches felspar, and is scratched by quartz; colour brass-yellow; streak brownish-black; lustre metallic.

**Massive Varieties:** amorphous, structure granular, compact; globular and stalactitic, structure fibrous or columnar, radiating; surface frequently reddish brown, owing to the loss of sulphur and acquisition of oxygen. It sometimes contains gold; the pyrites of Anglesey, Sweden, and Bohemia contains selenium.

By the blowpipe sulphur is expelled and magnetic oxide of iron remains. It is scarcely acted upon by dilute sulphuric acid, but nitric acid dissolves iron and deposits sulphur. This is the method by Hatchett:

<table>
<thead>
<tr>
<th>Sulphur</th>
<th>38.5</th>
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<tbody>
<tr>
<td>Iron</td>
<td>63.5</td>
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**Iron pyrites occurs abundantly in every part of the world. It is frequently found in the form of various fruits. The amorphous occurs sometimes to a great extent in coal-seams. Very large crystals occur in Cornwall and South Wales. The massive form in general more readily become oxidized and converted into sulphate of iron than the crystallized, and hence it is largely employed in preparing copperas.**

**White Iron Pyrites** occurs in attached crystals and massive. Primary form a rhombohedral prism; cleavage parallel to the planes of the primary form; fracture uneven, granular; hardness 6° to 6½; scratches felspar, is scratched by quartz; colour various shades of yellow, greenish, and greyish-white; streak greyish-black; opaque; lustre metallic.

**Massive Varieties:** botryoidal, reniform, stalactitic, and morphous. Structure diverging, fibrous, or columnar, it is found in Cornwall, Derbyshire, Bohemia, and various other mining districts. According to Berzelius it consists of Sulphur: 53.35 Iron: 45.07 Manganese: 0.70 Silica: 0.80

Having now mentioned those ores and compounds which contain most iron, we refer to Assaying for the means by which their value is determined. We now proceed to consider the artificial oxides and other compounds of iron which are procured by chemical agency.

**Oxygen and Iron** do not combine at common temperatures when both are quite free from moisture, but when filings moistened with a little water are exposed to the air, a black powder is formed by the absorption of oxygen, which is almost entirely protosilicon of iron, and was formerly employed in medicine under the name of *martial ethos*. Protosilicon of iron, nearly pure, may also be procured by dissolving iron in dilute sulphuric acid, decomposing the solution by potash and drying the precipitate out of the contact of air. The properties of this oxide are, that it is black, tasteless, insoluble in water, readily dissolved by most acids, and obeys the magnet. It is precipitated from its saline solutions by potash and ammonia in the state of white hydrate; mixture of galls and hydro sulphuric acid do not produce any alteration in its solutions; by the alkaline carbonates protosilicon of iron is thrown down as a white carbonate, and by ferro cyanide of potassium as a colourless compound, which speedily becomes Prussian blue when exposed to the air.

It is composed of:

| One equivalent of oxygen | 8 |
| One equivalent of iron | 28 |

**Equivalent 36**

**Magnetic Oxide of Iron.**—This is the ore already described as crystallizing in octahedrons; it is obtained artificially by passing water over ignited iron in a porcelain tube; it is also formed when iron is heated in the open air, and the scales which fall from iron when it is rolled hot consist principally of this oxide. It blackens the magnet, brittle, easily reduced to powder, insoluble in water, and by sulphuric acid is dissolved and separated into protoxide and sesquisoxide; the solution is in fact a mixture of protosulphate and persulphate of iron. It gives a black precipitate with tincture of galls, and a blue one with ferrocyanide of potassium. It is composed of one equivalent of protoxide 36, and 2 equivalents of persulphate 80; or it may be regarded as constituted of:

| Four equivalents of oxygen | 92 |
| Three equivalents of iron | 84 |

**Equivalent 116**

It is sometimes described as a 3 oxide of iron.

**Peroxyde, or sesquioxide, of Iron.**—Various ores, among others hematite, have been described as consisting of this oxide, which is, in fact, common rust of iron, and it is obtained by the action of a plate of iron upon moist atmospheric air. It may be easily procured also by acting upon filings with nitric acid, when the acid is moderately strong, but little iron is dissolved, the whole being at once precipitated in the state of red peroxyde. When more dilute, a solution of peroxyde is obtained, from which the alkalis precipitate peroxyde of potassium or Ferro Prussian blue. Like hematite, this artificial oxide has a red colour; it is inodorous, insipid, insoluble in water, forms red solutions with acids, but does not readily dissolve in them when it has been heated. It is composed of:

| One and a half equivalent of oxygen | 28 |

**Equivalent 40**

**Chlorine and Iron form two chlorides, the protochloride and the perechloride.** The protochloride may be formed by passing dry hydrochloric acid gas over iron heated to redness in a porcelain tube; hydrochloric gas is evolved, and the surface of the iron is covered with a white crystalline protochloride, when, if the temperature is much increased, sublimes. Or it may be prepared by dissolving the metal in hydrochloric acid, and evaporating the solution to dryness out of the contact of air. In this case also the hydrogen of the decomposed hydrochloric acid is evolved; the protochloride thus obtained is grey and crystalline.

This compound is very soluble in water, but insoluble in absolute alcohol; the solution by exposure to the air absorbs oxygen, suscipible of the air absorbs oxygen, the solution of protochloride of iron (frequently called protomurrite) dissolves nitrous oxide gas, and the solution has been used in euclimetry, for the purpose of absorbing uncombined oxygen gas. [Euthometer.] It is decomposed by the alkalis, which throw down hydroxylate of iron, and by their carbonates, which yield protocarbonates. It gives no precipitate with hydrochloric acid or tincture of galls, and a white one with ferro cyanide of potassium, which speedily becomes blue.

It is composed of—

| One equivalent of chlorine | 36 |
| One equivalent of iron | 28 |

**Equivalent 64**

**Sesquinchloride, or Perchloride, of Iron** may also be prepared by two processes, by heating a mixture of iron and chlorine gas; combustion attended with a red light emission, and a compound is formed, volatile at a heat below redness, and which exists in the form of brownish indescent scales.

This salt is very deliquescent, and dissolves readily in water, alcohol, and ather, and the solutions have a yellow colour.

The second method of obtaining sesquinchloride of iron is that of dissolving the sesquioxide in hydrochloric acid. a
reddish solution is formed, which, by evaporation till it becomes of the consistence of a syrup, yields reddish-brown crystals, which are very deliquescent and soluble. The aqueous solution of sesquisulphide of iron is decomposed by the alkaline phosphates, which yield a precipitate of hydrated sesquisulphide of iron. The carbonates produce the same effect, for sesquisulphide of iron does not unite with carbonate acid. Tincture of galls gives, with the solution of this salt, a deep black precipitate, and ferrocyanate of potassium a deep blue precipitate, which is Prussian blue. It is sometimes called permuriure of iron.

Sesquisulphide of iron is composed of—

- One and a half equivalent of chlorine
- Equivalent of iron

**Equivalent 82**

Azote and hydrogen do not form any compound with iron, or at any rate no permanent compound, though it seems probable that nascent hydrogen volatilizes, if it does not unite with a small portion of this metal, when used for preparing the gas by solution in an acid.

**Fluorine and Iron.**—The protofluoride may be formed by dissolving iron in a solution of hydrofluoric acid; small colourless square crystals are obtained, which are sparingly soluble in water, and become of a pale yellow colour by the action of the air. When heated they lose water, and may then be heated to redness without expelling the fluorine.

It is composed of—

- One equivalent of fluorine
- One equivalent of iron

**Equivalent 46**

The perfluoride, or sesquisulphide, of iron is procured by dissolving recently precipitated sesquisulphide in hydrofluoric acid; the solution is colourless. By evaporation a pale flesh-coloured substance is left, which has a somewhat aromatic taste and is but sparingly dissolved by water.

It consists of—

- One and a half equivalent of fluorine
- One equivalent of iron

**Equivalent 55**

**Bromine and Iron.**—When the vapour of bromine is passed over red-hot iron wire, a yellow fusible bromide is formed, which is readily soluble in water. When also bromine mixed with water is made to act upon iron, a solution of the protobromide, of a greenish colour, is obtained.

It consists of—

- One equivalent of bromine
- One equivalent of iron

**Equivalent 106**

A perbromide may also be formed. But these compounds are not important.

**Carbon and Iron combine, and the resulting compound is iron carburet. It may be stated that steel contains carburet of iron.** [Steel.] By the long fusion of steel with charcoal, Stodart and Faraday obtained a highly crystalline compound, containing from 5 to 6 per cent. of carbon, whereas steel usually contains only from 1:3 to 1:75 per cent. When Prussian blue is decomposed without the access of air at a red heat, a carburet of iron remains, composed of one and a half equivalent of carbon and one of iron; it is a black pulverulent substance, which at a low heat takes fire in the air, when carbonic acid is given out, and sesquisulphide of iron left.

The substances called graphite, plumbago, or black-lead, have been regarded as carburets of iron; it is however more than questionable whether the small and uncertain portion of iron which they contain is not in a state of mixture rather than combination.

**Sulphur and Iron readily unite, and the native compounds have been already mentioned. Protosulphuret of iron, having a precipitate, a gas, and a redness of the native mineral, may be formed by heating iron to whiteness and rubbing a mass of sulphur upon it. The sulphuret formed readily fuses, and should be dropped into water, removed from it, and dried. It may also be formed by other processes, as by adding a hydrosulphate to protosulphide of iron. That made by the first process is of a bronze colour, moderately hard and brittle; that formed by the last is dark and pulverulent. When put into dilute sulphuric or hydrochloric acid, sulphuretted hydrogen gas is evolved, and a protosulphate or protochloride of iron formed. It is a very useful substance for the preparation of hydrochloric acid gas, by the action of these acids.**

**It is composed of—**

- One equivalent of sulphur
- One equivalent of iron

**Equivalent 44**

**Bisulphuret, or Persulphuret, of Iron.**—It has been occasionally formed, both in the moist and dry way, artificially; fine yellow and well defined cubic crystals have been accidentally obtained during the preparation of hydrochlorate of ammonia from ammoniacal gas liquor. According to Berzelius, it may also be formed by cautiously heating the artificial protosulphuret with as much sulphur as it already contains; by this there is formed a bulky powder of a yellow colour and metallic appearance; it is not attracted by the magnet, nor does hydrochloric or sulphuric acid act upon it.

It is composed of—

- Two equivalents of sulphur
- One equivalent of iron

**Equivalent 60**

Some other sulphures of iron may be also artificially formed, but they are not of any great importance.

**Phosphorus and Iron.**—Diphosphuret of iron may be formed by several processes; the digest one is that of dropping phosphorus into a crucible containing red-hot iron wire; it is also obtained where the protophosphate of iron is heated with a charcoal-lined crucible; phosphorus and oxygen being expelled. It is a fused granular mass, having the peculiar lustre and lustre of iron, is not acted upon by hydrochloric acid. It is said that what is called cold-short iron owes its brittle property to the presence of this compound.

It is composed of—

- One equivalent of phosphorus
- Two equivalents of iron

**Equivalent 72**

The perphosphuret of iron is obtained by the action of phosphorus on persulphuret of iron at a moderate heat, it resembles the diphosphuret in its properties.

It consists of—

- Four equivalents of phosphorus
- Three equivalents of iron

**Equivalent 148**

**Iodine and Iron.**—When iron-flings are digested in a mixture of water and iodine, the metal is dissolved, and a green sulphonate is obtained, which by a proper treatment yields green tabular crystals of protiodide of iron; these when fused leave an iron-grey coloured opaque mass, which is very deliquescent, and soluble both in water and in alcohol. The solution rapidly absorbs oxygen, and peroxide of iron is precipitated, unless an iron wire be kept in it. It is used in medicine.

It is formed of—

- One equivalent of iodine
- One equivalent of iron

**Equivalent 154**

**Periodioxide, or sesquioxide, of iron is formed by digesting iron with excess of iodine, and subliming the product.** It is a red volatile compound deliquescent, and soluble in water and in alcohol.

It is composed of—

- One and a half equivalent of iodine
- One equivalent of iron

**Equivalent 217**

**Boron and Iron are made to combine with difficulty in any notable proportion. When hydrogen gas is passed over a borate of iron heated to redness in a porcelain tube, there was obtained, according to Lassaigne, a boruret of iron consisting of 22:57 boron and 77:43 iron. It was of a silver-white colour and very brilliant; it was with difficulty acted upon by sulphuric or hydrochloric acid, because the boron set free enveloped the metal and prevented its action.**

**Selenium and Iron may be made to combine by heating filings of the metal with selenium. The selenium has a greyish colour with a tint of yellow; it is hard, brittle, and when heated by the blowpipe loses selenium; it is
decomposed by hydrochloric acid when heated, and the results are silicenatrated hydrogen and protochloride of iron.

It is composed of—

One equivalent of selenium 40
One part iron 38

Equivalent 68

Having now described the more important compounds which iron forms with the elementary gases and non-metallic solids, we will briefly describe some of its alloys, and then mention such salts as its oxides form with acids as are most useful and best known.

The Alloys of Iron are much less useful than might be expected from the extreme utility of the metal itself.

In the first place, iron appears to us in the form of a ductile bristle, which is fusible but not pure iron, especially when in contact with the air. These alloys are decomposed by air and water. When a mixture of magnesium, iron filings, and charcoal is exposed to the melting heat of iron, the resulting globule contains traces of magnesium. With lime no analogous effect is produced.

Silicium and iron combine readily when silicium is fused with charcoal and charcoal powder. The composition, when ductile or brittle according to the quantity of charcoal which it contains. Silicium does not appear to diminish the ductility of iron, nor does the alloy after exposure to the air when the silicium does not exceed 5 or 6 per cent. Iron combines also with aluminium and silicon.

Arsenic combined with iron and with sulphur occurs as a mineral body. This contains nearly one-fifth of its weight of sulphur. In Silesia however an arsenic of iron occurs, which consists of 62'55 arsenic, 32'25 iron, and 1'77 sulphur. This last may therefore be considered as accidental admixture. It is used for preparing arsenic acid and realgar.

An alloy of one part of arsenic and two parts of iron is obtained by heating in a covered crucible, until fused, a mixture of one part of iron filings and a little more than half a part of arsenic. It has a greyish-white colour, does not obey the magnet, is very brittle, and much more fusible than iron. When heated in the air the arsenic is converted into arsensic acid, and volatilized, and oxide of iron is left. An alloy containing only one-fifth of arsenic obeys the magnet.

Chromium and iron may be combined. This alloy is but little known. With columbium iron forms an alloy hard enough to scratch glass. It is not at all ductile, is very difficult to break, and gives a brown powder. Acids dissolve the iron, leaving pulverulent metallic columbium.

Titanium does not appear to be susceptible of combination with iron. Zinc is with difficulty made to unite with iron, but yet in some operations a compound of these metals has been formed, the zinc constituting however much the larger portion of the alloy. A sulphate of protoxide of iron and zinc is, and is brittle. It has been proposed to cover iron with zinc, in the same way as with tin, to prevent oxidizement. As yet however it has not been rendered practically useful.

Tin and iron combine in tin plates, which are plates of iron, both sides of which are alloyed or combined with tin. According also to Bergmann, when a mixture of tin and iron is fused, two separate layers are formed, each constituting a peculiar alloy of iron and tin, one of one part of iron and twenty parts of tin, is ductile, of a rather deeper colour than tin, and somewhat harder; whilst the other, composed of two parts of iron and one part of tin, is rather ductile, but so hard that it cannot be cut with the knife.

Antimony and iron unite when heated together in close vessels; the alloy is white, hard, brittle, and its specific gravity is less than that of the mean of the two metals. No metal appears to deprive iron more of its magnetic property than antimony.

No compound of tellurium and iron has yet been examined.

Cobalt and iron combine by fusion: the alloy is hard and magnetic.

Nickel and iron unite easily. It has already been mentioned that meteoric iron contains from about 2 to 10 per cent. of nickel. The artificial alloy is less liable to rust than iron alone; but when the nickel amounts to about 10 per cent, the ductility of the iron begins to diminish.

Bismuth combines with iron, but with difficulty; a very small portion of iron renders the alloy magnetic.

Molybden forms a bluish-grey bristle compound with iron. Equal parts of these metals may be fused by the blowpipe, but one part of iron to two parts of molybden may be converted into a grey compound, which is fusible by the blowpipe, attracted by the magnet, and of a fine grained fracture.

Copper is with difficulty combined with iron. The alloy is magnetic, even when the part of copper is one-twelfth of iron. It is stated that iron which contains copper is rendered more tenacious, and does not become brittle till near a red heat.

Silver combines readily with iron when they are fused together, but they separate on solidification, and globules of iron containing silver are obtained. When even the quantity of iron does not exceed 1-400th, it may be perceived that it is not combined but intermixed with the iron.

Mercury and iron do not unite directly. The addition of another metal favours the amalgamation. An amalgam may be obtained by digesting tin plate in boiling mercury. The alloy is silvery-white, tenacious, almost ductile, and obeys the magnet. Other processes have also been proposed.

Lead and iron combine with difficulty. If a mixture of the two metals be fused, there are obtained two layers of alloy; the upper one is iron containing a little lead, and the lower one lead containing a little iron.

Rhodium and iron might both be combined with iron and also with steel. Iron and antimony also unite with tungsten: the alloy is of a bright brown colour, hard, harsh to the touch, and brittle.

Gold and iron combine with facility. A compound of eleven parts of gold and one part of iron is nearly obtained. It is very ductile, and its specific gravity 16'885. An alloy of three parts of iron and one part of gold is of a silver colour, and is attracted by the magnet. Steel may be soldered with gold.

Iron and platinum, in equal quantities, form an alloy which is susceptible of a fine polish, and does not tarnish in the air. The colour of this compound is such as to render it very useful for reflectors. Its specific gravity is 9'692. Platinum may also be combined with steel. [Steel.]

Having described the more important binary compounds of iron, we shall consider those which its oxides form with some acids, and also notice some combinations which are not included in this class.

The action of acids upon iron is different, being greatly dependent upon their nature and composition. An aqueous solution of sulphuric acid dissolves the metal without the evolution of any gas whatever, and a solution of the protioxide is obtained; concentrated sulphuric acid, when cold, scarcely acts upon iron, but when the acid is volatile, the sulphuric acid is decomposed, sulphuric acid is evolved, and oxide of iron is formed; dilute the sulphuric acid, and then the water is decomposed, hydrogen gas is given out, and the oxide of iron is converted into sulphate of protoxide of iron. The formation of iron into liquid hydrochloric acid, hydrogen gas is then also evolved, but this is derived from the decomposition of the acid, and not of the water, and the metal unites with the chlorine to form a protochloride. Nitric acid when concentrated has no action upon iron, whether cold or hot; but when diluted, nitric oxide is evolved, owing to the decomposition of the acid, and protioxide or peroxide of iron is formed, according to the degree of which the acid is diluted.

The first salt which shall describe is the Sulphate of Iron, or Sulphate of Protioxide of Iron. It is largely prepared for various purposes, especially for dyeing black, by exposing iron pyrites to the action of air and moisture, in masses which are called copperas beds. By burning oxygen, the sulphur becomes protoxide of iron, and the iron protoxide, and these combining form protosulphate of iron; as however there is great excess of sulphuric acid, pieces of old iron are added to saturate it, and the copperas, or green vitriol, is obtained in the state of crystals, by evaporating the solution.

For nicer purposes, especially for medicinal use, sulphate of iron is prepared by dissolving iron filings or turnings in dilute sulphuric acid; it may also be obtained by dissolving protioxide or protosulphate of iron. The solution is of a bluish green colour, and the salt obtained has the following properties: the primary form of the crystal is an oblique rhombohedral prism; its colour is bluish-green when recently
prepared, but by exposure to the air, and the partial peroxidization of the iron, it becomes first green and eventually yellowish. Like the other salts of iron, it has a disagreeable, styptic taste; two parts of cold water, and three-fourths of a part of boiling water, dissolve one part of this salt; when moderately heated it loses the greater part of its water and becomes white, and when subjected to a red heat it is partially converted into peroxide and partly into peroxide of iron; and when the heat is long continued, totally into peroxide; but when subjected to distillation without the free contact of air, it yields a peculiar kind of sulphuric acid. This salt is insoluble in alcohol; the aqueous solution of it is decomposed by the alkali, which precipitates hydrated protosulphate of iron; by the alkaline carbonates, which throw down protocarbonate of iron; and by ferrocyanide of potassium, which, when the solution is quite free from peroxide, gives a white precipitate, but if any peroxide be present, which is generally the case, then the colour of the precipitate is more or less blue, dependent upon its quantity; tincture of galls also gives no precipitate in a solution of perfect protosulphate of iron, but, for the reason already stated, it generally gives more or less of a dark-coloured precipitate. The aqueous solution, when exposed to the air, owing to the peroxidization of the iron, gradually lets fall a precipitate which is a subsulphate of iron. The solution also absorbs nitric oxide, and hence is used in eudiometer processes.

**Sublate of iron is composed of**—

One equivalent of sulphuric acid 40
One equivalent of protoxide of iron 36
Seven equivalents of water 63
Equivalent 139

We have given a rather detailed account of the properties of this salt, because it may be considered as a type of the soluble salts of protoxide of iron, and will save useless repetition.

**Sulphate of Peroxide of Iron, or Sesquiper sulphate of Iron** may be considered as representing the soluble salts of peroxide of this metal. It may be prepared by dissolving the moist peroxide, obtained by decomposing the solution of the perchloride with an alkali, in dilute sulphuric acid; but it is generally formed by heating a solution of the protosulphate with nitric acid, which being decomposed yields oxygen to the protoxide and converts it into peroxide. This solution is of a reddish colour when concentrated, and yellowish when diluted. No crystals are obtained by evaporation, but there remains a brown deliquescent mass; its taste is very astringent, and it is soluble in alcohol; when concentrated sulphuric acid is added to a strong solution of this salt, it is precipitated in the state of a white amorphous powder. The solution, like that of the other persalts of iron, gives a yellow precipitate of hydrated peroxide with the alkali, and a blue one with the pyranydides of potassium, and a very dark one with tincture of galls. It is decomposed by heat, which expels the sulphuric acid, and leaves peroxide of iron. This salt exists in what are termed the mother liquors of the copperas waters, and it is also formed, though very slowly, by the action of the air upon a solution of the protosulphate of iron, a subsulphate being precipitated. It is a sesquialt, composed of—

One equivalent and a half of sulphuric acid 60
One equivalent of sesquioxide, or peroxide 40
Equivalent 100

**Nitrates of Iron.** Of these, as of the sulphates, there are two. When iron is acted upon by gaseous nitrite nitric acid, and an acetonitrile of a pale green colour is obtained; but when the acid is moderately diluted pernitrate of iron is formed: this resembles the persulphate in its more important properties, and is, like it, a sesquialt.

**Carbionate of Iron.** It is only the protoxide of iron which combines with carbonic acid to form a solid compound. It has already been mentioned that carbonate of iron exists in nature, and is the basis of what is termed the argillaceous tracts of iron ores; it is also opaque in transparent rhombic crystals, much resembling calcareous spar in appearance. The crystals are however more commonly yellowish-brown, and constituting what is called spathose iron ore. Calcium carbonate is precipitated from the solution of the protosulphate by the alkaline carbonate; but one can account of the facility with which the protoxide absorbs oxygen, it is almost impossible to obtain it perfect, in a dry state. Carbonate of iron is decomposed by heat and alkalis; the carbonate of iron, held in solution by excess of carbonic acid, exists in chalky-water. It is composed of—

One equivalent of carbonic acid 22
One equivalent of protoxide of iron 36
Equivalent 58

**Phosphates of Iron.** The protophosphates occur in Cornwall, Wales, &c. It is sometimes called phosphoric acid. The primary form of the crystal is an oblique rhombic prism. Cleavage parallel to the oblique diagonal; fracture indistinct; hardness 1.5 to 2; colour various shades of blue and green; streak lighter than colour; it is not affected by nitric or hydrochloric acid, but 2.5 to 2.7. Soluble in dilute sulphuric and nitric acids without effervescence. Before the blowpipe on charcoal intumesces, reddens, and melts into a steel-grey globule with metallic lustre. Mauvais varieties, aggregations of crystalline particles, or globular and amorphous earthy masses.

Analysis of the crystallized (No. 1) by Stromeeyer, and of the earthy (No. 2) by Klaproth:—

<table>
<thead>
<tr>
<th>Iron</th>
<th>Phosphoric acid</th>
<th>Protosulphate of iron</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1</td>
<td>41.87</td>
<td>47.63</td>
<td>27.49</td>
</tr>
<tr>
<td>No. 2</td>
<td>41.23</td>
<td>37.34</td>
<td></td>
</tr>
</tbody>
</table>

This compound may be formed artificially by adding a solution of phosphates of soda to one of protosulphate of iron; the precipitate is at first blue, but by attracting oxygen from the air it is converted into peroxide, and then becomes white. It is soluble in most acids, and may be precipitated from them by ammonia without being decomposed.

**Perphosphate of iron** is white; it is obtained by adding phosphates of soda to persulphate of iron. Like the protophosphates it is insoluble in acids and may be precipitated from them unaltered.

**Arsenates of Iron.** [Arsenical Minerals.] The arsenate of iron is obtained by adding arsenite of potash to a solution of protosulphate of iron; a greyish precipitate of protoarsenate is obtained, which, by exposure to the air, absorbs oxygen and becomes darker. The arsenate of iron is obtained by precipitating a solution of the persulphate by arsenite of potash. It is a yellowish-white insoluble powder.

**Chromate of Iron.** [Chromium.]

**Tungstate of Iron.** [Tungsten.]

**Percyanide of iron.** Russian Blue. [Blue.]

We shall conclude this part of the subject with a brief account of the natural occurrences of the salts of iron.

**General properties of the Sulphates of Iron.** Those salts which contain or yield the protioxide are distinguished by the following properties:—They give no precipitate with tincture of galls or hydrosulphuric acid; a white one, which becomes quickly blue on exposure to the air, with further absorption of oxygen, on being boiled with a blue or black precipitate with tincture of galls; the ferrocyanide of potassium also gives a deep blue, but the sesquiferrocyanide gives none at all. Hydrosulphuric acid reduces them to the state of protioxide, sulphur being precipitated. Ammonia, and the solutions of potash and soda, give a yellow hue to it.

There are however some exceptions to the production of these effects: thus the tartrate of potash and peroxide of iron, the ferri potassio-tartrates of the Pharmacopoeia, gives no blue precipitate with ferrocyanide of potassium, nor is it precipitated by ammonia or the alkaline carbonates; but potash, when the mixture is heated, throws down hydrated peroxide of iron.

**Iron Manufacture and Trade.**—The art of smelting iron was practised in this country during the time of the Roman occupation and in every kind of tin mines, the refuse
The furnace is charged from the top with certain proportions of iron-ore, of coke, and of limestone. The ore must previously have been roasted or calcined in a kiln, in order to drive off the water, sulphur, and arsenic, with which it is more or less combined in its native state: by this process it loses one-sixth of its weight. A furnace of the size commonly used in Wales will produce from 84 tons of pig-iron in twelve hours. For the largest quantity the furnace must be charged progressively with 15 tons of roasted iron-ore, 224 tons of coke, and about 6 tons of limestone. These ingredients are supplied at 50 charges, and must be so placed in the furnace that the first must be broken into small pieces; its use is to act as a flux to the ore and promote its fusion. The heat that would be produced in any furnace by merely setting fire to the fuel, which is contained within it, would be altogether insufficient for the fusion of the ore, if its intenseness were not promoted by the forcing in of a current of blast or air. For this purpose it is necessary to use a strong mechanical force, and of late years the agency of steam has been most commonly employed for this purpose. Water-wheels, where they can be had, are of course cheaper agents; but there are not many places where a sufficiently copious and regular supply of water at all seasons can be commanded, and the success of an iron-work would be destroyed by the failure of the blast for any degree of time. Steam-engines are therefore usually preferred. This power is applied to the working of a blowing cylinder, which may be four times the area of the cylinder of the steam-engine. If the blast thus produced were immediately passed from the cylinder through the tuyeres to the furnace, the effect would be intermittent and irregular, ceasing at the end of each stroke of the steam-piston. To remedy this inconvenience the blast is carried into an intermediate chamber of a spherical or cylindrical shape, called a real or iron-sphere, and as the air is in a state of condensation when admitted, its effort to expand itself again to its natural volume causes the continuous and regular supply to the furnace which is necessary. The air thus forced into the furnace keeps the heat at the degree of intenseness which is indispensable for the smelting of the ore. Until the last few years the air thus supplied was uniformly at the temperature of the atmosphere from which it was immediately taken, and the effect was not only to produce a lower degree of heat, but also to supply a quantity of moisture which is prejudicial to the smelting process. Atmospheric air always contains moisture in some degree or other, but holds a larger proportion in hot than in cold weather, for a very obvious reason, and this causes the furnace not to work so well in summer as in winter. By the previous drying and heating of the air these inconveniences are remedied, the consumption of fuel is lessened, and the absence of moisture is said to have a beneficial effect upon the quenches of the iron produced. This is the invention of Mr. Neilson, of the Clyde Iron-works, and has been made the subject of a patent. It is probable that when, by the expiration of the term of the patent, this invention may be freely used without licence for a certain quantity of coal used for the preliminary heating of the air. It is supposed that the improved quality of hot-blast iron is the result of the state of dryness which is thus attained. The iron is run from the furnace every twelve hours, by tapping it in the front, on a level with the bottom of the hearth, at the side on which, as will be seen from the diagram, there is no tuyere introduced. When the furnace is tapped the metal is allowed to run into channels formed in the sand bed of the lower part of the hearth, and is poured into moulds. Those iron works which are specially adapted for the production of pig-iron and wrought iron, have a system of hot-blast and water-wheel, which were originally given by the workmen, signify in one case the blocks of iron which are formed in the large main channels, and in the other case the smaller blocks which are formed in smaller side channels communicating with the larger ones; these names were adopted from the fancied resemblance of the cast...
metal to a sow and her litter of pigs: this is iron in its crudest state. The weight of materials lost in its production is somewhat greater than that of the fuel used; taking into account the refuse cinder and ashes with the metal, the whole does not weigh quite so much as the ore and lime that have been put into the furnace. Large heaps of cinder are accumulated in the surroundings of ironworks, and give a dreary aspect to the country.

The quality of pig-iron varies according to the purposes for which it is intended, and depends not only upon the quality of the ore, but also upon that of the fuel. The principal division is into foundry-iron and forge-iron, the former being used for castings, the latter for conversion into malleable iron. Foundry-iron is further divided into three qualities, distinguished by the numbers 1, 2, and 3. No. 1 contains a large proportion of carbon, which is acquired from the coke used in smelting, and the quality of which has been chosen with a view to the production of this kind of iron, which is soft and very fluid when melted, so that it will run into the finest and most delicate forms the mould can produce. No. 2 contains a smaller proportion of carbon; it is harder than No. 1, closer grained, and of more regular fracture; it is more refractory in the furnace, and does not run so freely when melted as No. 1, being, as it is softer, less plastic. It is preferred for purposes where strength and durability are wanted in preference to delicacy of form; these two kinds are unfit for conversion into bar-iron. No. 3 varies in the same direction as No. 2, but in a greater degree, from the qualities of No. 1; it is used for the special purposes for which there is no other metal capable of bearing great strains and is exposed to constant wear.

Forge-iron is divided also into three qualities, and is distinguished as bright iron, mottled iron, and white iron, which names are indicative of the appearance which each quality presents to the eye; they all of them contain some carbon, but less than foundry-iron, and in proportions diminishing in the order in which they are here mentioned, white iron having the smallest proportion of any, and being exceedingly hard; its fluidity too is so small that it is with difficulty that the channels provided to receive it at the first smelting; and it is altogether incapable of being afterwards used for foundry purposes.

Forge or bar iron is pig-iron freed from carbon and oxygen. The first operation for producing this change is called refining, and is performed in small low furnaces about three feet square at the base, having the bottom, or hearth, of fire-bricks, and the sides of cast-iron, made hollow to allow a stream of water to pass constantly through, which prevents the fire from burning away; near the top are holes for the insertion of blast-pipes. These refiners have iron doors at the back, but are open in front; the whole is surmounted by a chimney of brick-work carried to the height of about five feet. At the front of the hearth in front is a hole similar to that in the smelting-furnace for running out the melted metal. This communicates with a flat mould of cast-iron 20 feet long and two feet wide, placed over a cistern of water with which its under surface is in constant contact; this serves to cast the metal rapidly into bars, which runs into the mould. The iron is kept in a state of fusion in the refiner for some time exposed to an intense heat produced by a strong blast. From the sudden cooling to which it is exposed, the plate when run into the mould is very brittle; when broken the fracture presents a bright silvery appearance. The operation of refining requires about two hours for its performance, and as the weight of each plate when run out is about one ton, each refiner is capable of yielding about five tons weekly. 22 to 25 hundred-weight of pig-iron are required to produce one ton of refined iron, and from 10 to 12 cwt. of coke is used for the purpose.

The first process employed for making bars is called puddling, and is performed in a reverembury furnace, thence called a puddling-furnace: the structure of this furnace will be explained by the following diagram:—In this diagram a is the grate, which is supplied with coal through a door in the side. The refined metal broken in small fragments is placed in the body of the furnace, that when the damper is raised the flame is sometimes carried to the top of the chimney. The quantity of refined metal put into this puddling-furnace at each charge is from 15 to 25 Tons.

In about half an hour from the charging of the furnace the metal begins to melt. The puddler then observes through a small hole provided for that purpose and for the introduction of his tools, the progress of the work. The business of the puddler is so to dispose of the pieces of metal, moving them by means of his tools, as to ensure an equable application of heat to the mass. When the whole quantity is fully melted, the puddler stirs the metal about briskly, changing his tools continually that they may not be melted. By means of this agitation the metal gives off an elastic fluid, and after a time becomes thick, and grows in increasing mass, until it loses all fluidity and forms lumps. The contents of the furnace are then divided into five or six portions by the puddler, and each is made up by means of his tools into a spherical form. These balls are technically called blooms. Being taken from the puddling furnace they are subjected to a hot bath from a heavy hammer (called shingling), which makes them more compact and gives them a shape more convenient for going through the rollers. The form and construction of these rollers are shown in the following diagram. The bloom passed in succession through the holes in a, beginning with the largest and proceeding to the smallest; it is then passed through the grooves in the second roller b, and is thus reduced to the requisite width and thickness, having by these processes been converted from a fusible, hard and brittle substance, to a tough and elastic bar which is hardly fusible, and which from its property of yielding an allowing its forms under the hammer has acquired the name of malleable iron.

The quantity of refined metal required to make one ton of these rough bars is about 25 cwt., and the quantity of coke consumed in the process is about 17 cwt. The bars, when they have been passed through these rollers, and while white hot, are cut into convenient lengths and taken to the balling-furnace, the shape and construction of which resemble those of the puddling-furnace. In this balling-furnace the bars are piled evenly, so that one bar does not project beyond another. Several of these piles, each of which is composed of five or six bars, are placed at once in the furnace, and when sufficiently heated, so that they will weld together, the piles are taken out separately and are passed through rolls similar in construction to those described above, but differing from each other in the form of the cradles and grooves, so that either round or flat or square rods and bars may be produced at the pleasure of the maker, and those when weighed and put up into bundles are ready for sale.

There are no means of ascertaining correctly the quantity of iron made in this country. Estimates have been formed at different periods, but these are at best but approximations to the truth, and the estimates are as under:—

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1740</td>
<td>17,000 Tons</td>
</tr>
<tr>
<td>1788</td>
<td>68,000</td>
</tr>
<tr>
<td>1796</td>
<td>123,000</td>
</tr>
<tr>
<td>1820</td>
<td>400,000</td>
</tr>
<tr>
<td>1827</td>
<td>690,000</td>
</tr>
</tbody>
</table>
More recently (in 1836) the gentleman who has been already mentioned as an engineer in the employ of the French government, M. Le Play, having visited every ironwork in the United Kingdom, ascertained that the quantity produced was one million tons, which was probably not beyond the truth at that time. In the following year several furnaces put out of use, but it is possible that the quantity in 1838 will again reach, if it do not exceed, the quantity just mentioned. The quantity of iron conveyed upon the Monmouthshire and Glamorganshire canals in 1837 amounted to 20,000, weighing, including 20,000 tons of railway iron from the Dowlais works alone.

The manufacture of iron has increased very considerably of late years in France, and since the establishment of mining inspectors in that country we know precisely the quantity produced within the year. Since 1834 the production has been—

<table>
<thead>
<tr>
<th>Year</th>
<th>Pig Iron</th>
<th>Malleable Iron</th>
</tr>
</thead>
<tbody>
<tr>
<td>1833</td>
<td>15,409</td>
<td>221,469</td>
</tr>
<tr>
<td>1834</td>
<td>18,230</td>
<td>233,559</td>
</tr>
<tr>
<td>1835</td>
<td>20,536</td>
<td>268,028</td>
</tr>
<tr>
<td>1836</td>
<td>22,978</td>
<td>306,378</td>
</tr>
<tr>
<td>1837</td>
<td>26,524</td>
<td>338,739</td>
</tr>
</tbody>
</table>

The iron trade of England in all its various branches is of very great importance. Its growth since 1814 has been exceedingly rapid, as will be seen by the following statement of exports in each year:

<table>
<thead>
<tr>
<th>Year</th>
<th>Iron Exports</th>
<th>Total Exported</th>
</tr>
</thead>
<tbody>
<tr>
<td>1814</td>
<td>3,792 tons</td>
<td>14,852 tons</td>
</tr>
<tr>
<td>1824</td>
<td>83,078 tons</td>
<td>191,409 tons</td>
</tr>
<tr>
<td>1834</td>
<td>10,980 tons</td>
<td>176,500 tons</td>
</tr>
</tbody>
</table>

See Manufacture of Iron in the Library of Useful Knowledge.

IRON. Medicinal Properties. [Chalybeate Springs.]

IRON BRIDGES. [Bridges.]

IRONY (σινωτεία), a refined species of ridicule, which under the guise of earnestness and simplicity exposes all the vices of an opponent, under their principal emblems, and ridicules them. It stands intermediate between irony, or frank simplicity, on the one hand, and bater and persiflage, or ridicule, on the other. From the former it is distinguished by the consciousness and intention of ridicule, which object again is more covert and less transparent in irony than in the latter. By Aristotle the ironical is opposed to the boastful (τῆς ἀπολύσεως), and as a middle term between the two he places the truthful (τῆς ἀπειράς). The Latins translated the word irony by 'dissimulato,' which however expresses the truth, and preferred 'iniquus,' and 'invidiosus' (vitium), as we infer from the original, for which we are indebted to the refinement of the Athenians, among whom Socrates, the master in this art, was called emphatically the Ironical (σινωτος). The strict etymology of the term is very doubtful. One explanation, looking to the so-called Socratic method of question and answer, takes it to mean simply 'the interrogator,' while another would derive it from ἁπορία, to fasten, which may have had reference to the skill with which Socrates reduced the argument, but was probably only an original to the word. For the serious object of the Socratic irony, in which he represented himself as desirous to learn of those whose claim to wisdom he judged to expose, was awakend reflection by the development of the consciousness, he nevertheless combined with it all the Attic urbanity and wit. It was consequently of two kinds, a finer and a grosser, according as it was aimed at in the one, and at the other. The sophists, whose undue and pernicious reputation he sought to subvert, or with those younger but not less conceited spirits, who yet sought his society for the sake of benefit and improvement, and therefore required a milder and more merciful treatment.

The ironical argument proceeds in simulated ignorance, and, by appearing to agree with those whom its purpose is to refute, in holding certain erroneous opinions and maxims, brings out the antagonism of truth to error, and gradually involves itself in inextricable contradiction. In this account it has been considered a species of apoplectic argument (τῆς ἀπολύσεως ἀνατρόπης), or reductio ad absurdum.

As a figure of rhetoric, it is correctly defined to be that mode in which our words convey a sense directly contrary to what we express, but agreeable to what we mean and are understood to mean. (Beattie, Moral Science, c. i. § 1., p. 4.)

In an opposite and somewhat extended sense those mistakes have been called ironical, wherein our intended expressions receive an inverted signification.

Since the essence of irony consists in its serious and seeming simplicity, it is essential to its successful application that it should appear gradually to the mind, not by way of exposure, and neither lose its covert character by rising too suddenly to exaggeration and extremes, nor yet so closely veil itself that the intention of ridicule may appear through the assumed mask of earnestness and simplicity.

Of English writers Swift contains the strongest and the most numerous examples of irony. IROQUOIS, or MOHAWKS, an Indian tribe in North America, formerly known also under the name of Minneowgo, or Six Nations, inhabiting the country between the present town of Montreal and Lake Ontario. This once powerful and numerous tribe gradually diminished, as the European settlements in their country increased, and in the present number of individuals composing it, probably does not exceed 1,600. They inhabit two villages not far from the southern banks of the river St. Lawrence. Coginawaga, opposite the island of Montreal, contains about 900 inhabitants, and St. Regis more than 700. The last-mentioned village is situated where the borders of Canada and the United States strikes the river St. Lawrence, so that one half of the village is within the British territories and the other belongs to the state of New York.

The Iroquois have quite changed their manner of life; they derive their subsistence from the produce of their fields, in which they cultivate rice, Indian corn, potatoes, and peas, and from the rearing of some poultry and hogs. They also fish and hunt, but these are no longer considered the principal means of subsistence. The whole of the country is still for the most part uncultivated, and the Iroquois, that inhabit the country further west, but do not seem to differ from that of the Wyandots, Nadowesses, and Aszeenepoytuck, and hence the language of all these tribes is called Iroquois.

(Bouchette, Topogr. Diction. of Lower Canada; Carver's Travels through North America; Dr. Richardson, in Franklin's First Journey to the Polar Sea.)

IRRATIONAL QUANTITY. The distinction between quantity in general, and that ratio between the ratio of quantity to quantity, and that of number to number, has begun to appear in the article INCOMMENSURABLE, of which the present may be taken as a continuation. It there appears that there are such things as magnitudes which are not in the proportion of any one number to any other; though if we may use numbers as great as we please, we can find a pair which shall be as nearly as we please in the ratio of any two given incommensurable quantities.

According to the modern use of the term irrational, it simply means not expressible by a finite fraction. The word ratio, or its equivalent λόγος, does not here mean reason, in the common sense of the word, but mathematical proportion. A quantity whose proportion to the unit of quantity cannot be expressed arithmetically, that is, by a whole number, or a fraction, is 'inexpressible by an arithmetical ratio,' or 'arithmetically irrational,' abbreviated into...
irrational. This explanation is very important, since the student might otherwise be led to suppose that irrational numbers are inconsistent, absurd, or impossible. Suppose for example that we have a geometrical problem which we solve by the application of arithmetic, taking a certain line to be one, and applying the fundamental principles explained in R, and suppose that the problem thus reducible to the solution of \( x^2 = 2 \), or the quantity sought is such a fraction as multiplied by itself will give 2. The mathematical answer is very simple; there is no such fraction. But is the problem therefore impossible? By no means; for the line required is not the discrete magnitude of the square whose side is the linear unit. What then is the reason for our not being able to produce an arithmetical solution? Because the ratio of the line sought to the linear unit given is not to be expressed in an exact ratio, or in other words, to be irrational. The student has now arrived at the point where he must be taught (if he have not learnt it before) that arithmetic is not the science of all ratios or relative magnitudes, but only of the ratios or relative magnitudes of those quantities which are made up of putting together quantities which are all equal to one another. The senses alone would never make this distinction, and those who desire nothing more than sensible evidence in their mathematical studies need not attend to it: unfortunately the present bent of such pursuits to mislead them is complete, and that which was lucidly avowed, but not the appearance of absolute rigor.

The student who begins to extract the square root of numbers is allowed to place the symbol of that process over numbers as well as monomials; he does not admit of its being extended to the dissection of a square whose side is a linear unit. Such symbols are reasoned on as if they represented fractions, and arithmetical deductions are drawn; but when it is required to reduce them to practice, then the possibility of determining their arithmetical values is denied, and it is implied that they have no meaning, as, for example, \( \sqrt{3} \); \( \sqrt{3} \). These remarks might be made on cube, fourth, &c. roots. If we take the series of numbers 1, 2, 3, &c., and extract the square root of each, we thereby obtain (1) the original series 1, 2, 3, &c., by means of \( \sqrt{1} \), \( \sqrt{2} \), \( \sqrt{3} \), &c.; (2) a series of multiples of \( \sqrt{2} \), namely, \( \sqrt{2} \), \( 2 \sqrt{2} \), \( 3 \sqrt{2} \), &c.; (3) a similar series of multiples of \( \sqrt{3} \); and so on ad infinitum. The primitive numbers are either prime numbers or products of different prime numbers. Thus we have a series of multiples of \( \sqrt{7} \times 5 \), but not of \( \sqrt{(7 \times 5)} \), since this last is \( 5 \sqrt{7} \), and \( 5 \sqrt{7} \) is, and, with its multiples, is included in those of \( \sqrt{5} \). Any two quantities in the same series are commensurables; thus \( 7 \sqrt{10} \) and \( 12 \sqrt{10} \) are in the proportion of 7 to 10, and have \( \sqrt{10} \) for a common measure; but any two which are in different series are incommensurables; thus \( 7 \sqrt{10} \) and \( 11 \sqrt{10} \) have no common measure whatsoever. And the sum or difference of any two incommensurable quantities is incommensurable with the rational line. We can form incommensurables, such as \( 2 \sqrt{2} + \sqrt{3} \), \( 10 \sqrt{10} + 11 \sqrt{10} \), \( 10 \sqrt{5} \), &c., no one of which shall be commensurable with any other.

The square root of any arithmetical fraction is commensurable with that of the product of its numerator and denominator, both of which are in different series are incommensurables; thus \( 1 + \sqrt{7} \) is \( 1 + \sqrt{7} \). Also the fraction made up by any two of the incommensurables just described is commensurable with the product of some similar pair: thus \( \sqrt{3} + \sqrt{5} \). \( \sqrt{10} - 2 = 1 + \sqrt{3} + \sqrt{5} \) (\( \sqrt{10} + 2 \)).

If we take the square root of one of the preceding binomials, as \( \sqrt{3 + \sqrt{5}} \) we have a new quantity, not commensurable with any of those just mentioned, except only in certain cases pointed out by the following theorem. Let \( a \) and \( b \) be two numbers, of which \( a \) is greater, and

\[
\sqrt{\left( a^2 + (a-b) \right) - \frac{1}{2} a^2} + \sqrt{\left( a^2 - (a-b) \right) - \frac{1}{2} a^2}
\]

If \( a + b \) be both square numbers, let \( a = p^2 \), \( b = q^2 \), and we have

\[
\sqrt{\left( a^2 + b \right)} = \sqrt{\left( 2p + 2q \right) \pm \sqrt{(2p - 2q)}}
\]

Thus Euclid was not acquainted with any direct algebraical process, yet he carried the distinction of incommensurables betwixt rational and irrational in a formal way, as in the solution of all the possible cases which can be contained in the formula \( \sqrt{a^2 + b} \). We are induced to give an account of his tenth book, because there does not, to our knowledge, appear to have been any preceding scheme.

Indeed, we do not know where to find a description of its details in any form whatsoever. In old geometrical writings, references to the classification of this book are not frequently met with. If we take any given line to represent the unit of length, and if \( a, b, c, &c. \), represent lines commensurable with this unit, arithmetically expressed, it is well known that the most common geometry shows how to find the lines expressed by \( a, b, c, &c. \) All such lines Euclid terms rational, all others irrational (\( \varphiίος \) and \( \αίκος \)).

If Euclid had not made his addition (i.e. of the rational terms) a primary term in his book, then the numbers which have a rational side, he calls a rational area; that is, in any area which is commensurable (\( ιπυμπορος \)) with the square unit, is rational. The term for the square on a line is its power (\( \πολεος \)), the term for the square on a line and the square on line is called an apotome (\( ιπυμπορος \) literally, off-cut). The binomial for one of the forms \( a + \sqrt{b} \) and \( a + \sqrt{b} \) is the same for both. Six distinct species of each sort of line are found by taking \( a, b, c, &c. \), as a, b, c, &c., the apotome (\( ιπυμπορος \)) of which is called. Euclid separates the lines represented by \( \sqrt{a^2 + b} \), where \( a \) and \( b \) are commensurable with the unit, into twenty-five distinct classes, no one of which contains any lines commensurable with those of any other class. The following enumeration contains the order in which they make their appearance: \( a, b, c, &c. \), representing lines commensurable with the standard unit; \( A, B, C, D, E \), the six binomial lines; \( \sqrt{a}, \sqrt{b}, \sqrt{c}, &c. \), those connected with them; \( A, V, V, X, Y, Z \), the six apotomes; \( U, V, W, X, Y, Z \), those connected with them.

It is however to be noticed that Euclid does not use the term unit, but supposes a rational line, to which he makes reference. When he menhion in one place a rational line and a fourth binomial, he means that the fourth binomial shall be related to that rational line in the same manner as our following definition will connect it with the modern phrase.

To state this proposition which we should now enunciate by saying that the square root of a binomial of the first species

\( \sqrt{\frac{a+b}{a-b}} \) (a binomial of first degree).
(14.) $\sqrt{a}$ has the form $(\sqrt[4]{a}+\sqrt[4]{b})\sqrt[4]{x}$, where $a\sqrt{x}$ is not a square. It is described as differing from the former only in the medial lines containing a medial space, and is the second apotome of a medial line.

(15.) $\sqrt{X}$ has the form $\sqrt[4]{(\sqrt[4]{a}+\sqrt[4]{b})\sqrt[4]{x}}$, where $a\sqrt{x}$ is not a square. It is described as differing from the former only in the medial lines containing a medial space, and is the second apotome of a medial line.

(16.) $\sqrt[W]{Y}$ has the form $(\sqrt[4]{a}+\sqrt[4]{b})\sqrt[4]{W}$, where $a\sqrt{W}$ is not a square. It is described as differing from the former only in the medial lines containing a medial space, and is the second apotome of a medial line.
\[ \sqrt{a + b + c + d} - \sqrt{a - b - c - d} \]

and in showing the identity of the forms, Euclid proceeds at the manner of deriving one from the other. He also shows in two propositions, that the form \( \sqrt{(a+b)(a-b)} \) gives either a binomial line, or (4), (6), or (7) of the preceding enumeration, and that \( \sqrt{(a+b)(a-b)} \) gives either (3) or (8). In three propositions, that \( \sqrt{(a+b)(a-b)} \) gives either an apotome or (17) of the enumeration, that \( \sqrt{(a+b)(a-b)} \) gives either (15) or (18), and that \( \sqrt{(a+b)(a-b)} \) gives either (16) or (19). He further shows the equivalent of the following algebraical proposition: 

\[ \frac{a}{a+b} = \frac{b}{a-b} \]

The preceding enumeration points to one of the most remarkable pages in the history of geometry. The question immediately arises, had Euclid any substitute for algebra? If not, how did he contrive to pick out, from among an infinite number of orders of incomensurable lines, the whole, and no more than the whole, of those which were necessary to a complete discussion of all lines represented by \( \sqrt{a \pm b} \), without one omission or one redundancy? He had the power of selection, for he himself has shown how to construct an infinite number of other species, and an algebraist could easily point out more ways of adding others to the subject, which could not have been beyond Euclid. If it be said that a particular class of geometrical questions, involving the preceding formula and that one only, pointed out the only way the problem may be done, it is no such completeness appears in the thirteenth book, in which Euclid applies his theory of incommensurables. It is there proved that each of the segments of a line divided in extreme and mean ratio—that is, the side of an equilateral pentagon inscribed in a circle is equal to the radius of the circle—forms an incommensurable line, and that the irrationals which form the side of an icosahedron inscribed in a sphere—and that the side of a dodecahedron is an apotome. The apotome then and the lesser line are the only ones which are not included.

It appears probable that the distinction of commensurable and incommensurable, and even a notion of different species of incommensurable, was familiar to the geometry before Euclid wrote. We may have it, we must suppose that the definitions of the fifth book would have been accompanied by some little account of their necessity, and also that the absolute determination of two incommensurable magnitudes would not have been postponed till the last proposition of the tenth book. But it is impossible to draw any very positive conclusion on this subject. Owing to the loss of Euclid's book on Fallacies [Geometry, p. 162], we are probably left without those notions which he intended to be preliminary to the elements.

The most conspicuous proposition, of an elementary geometry which are applied in the tenth book are the 27th, 28th, and 29th of the sixth book, of which it may be useful to give the algebraical signification. The first of these (27th) amounts to showing that \( 2x-x^2 \) has its greatest value when \( x = 1 \), and one of the limitation necessary to the conditions of the two which follow. The 28th proposition is a solution of the equation \( ax-x^2=b \), upon a condition derived from the preceding proposition, namely, that \( a \) shall exceed \( b \). It might appear more correct to say that the solution of the equation is a particular case of the proposition, namely, where the given parallelogram is a square; but nevertheless the assertion applies equally to all cases. Euclid however did not detect the so-called \( \text{two solutions} \) of this kind, though if the diagonal of a parallelogram in his construction be produced to meet the production of a line which it does not cut, the second solution may be readily obtained. This is a strong presumption against his having anything like algebra; since it is almost impossible that the propositions of the tenth book, deduced from any algebra, however imperfect, could have been put together without the discovery of the second root. The remaining proposition (the 29th) is equivalent to a solution of \( ax-b \); but the case of \( ax-b \) is wanting, which is another argument against Euclid having known any algebraical reasoning.

**IRRATIONALS**

**BURLAN EMPIRE**

The common name for a particular class of cubic equations, to which Cardan did not succeed in applying his celebrated rule. Bombell however showed that the reason of this was the reality of all the three roots. The following is the sketch both of the method and the difficulty. [Bombelli: Cardan; Tartaglia; Theory of Equations; Negative and Impossible Quantities.]

Unity has three cube roots, 1, \(-1\) (\(-1 - \sqrt{-3} \)), and \(-1 + \sqrt{-3} \), of which the product of the second and third is possible and equal to unity. Calling these 1, \(r\), and \(-r\), it is known that the three cube roots, namely, \(a\), \(a\), and \(-a\). Now, let there be a cubic equation (A, B, and C being possible quantities)

\[ x^3 + Az^2 + Bx + C = 0 \]

and, by the method explained in Involution and Evolution, find another equation which has each root greater than a root of the preceding by \( \sqrt{A} \). We have then

\[ x^3 + (A+2B)x^2 + (4B+C)x + C = 0 \]

Let \( x = v + w \); then

\[ x^2 = v^2 + w^2 + 2vw \]

becomes

\[ v^2 + w^2 = (3v + w) + x = 0 \] (2)

Determining \( v \) and \( w \) so that

\[ 3v + w = 0 \]

by which means (2), and therefore (1), is satisfied. Thus

\[ v^2 + w^2 = 0 \]

we have

\[ \sqrt{v} \]

and from this \( \sqrt{w} \) may be found. But as the cube root of \( v \) lies between \( -1 \) and \( 1 \), \( v \) and \( w \) may be used as the cube root of one of the numbers \( v \) and \( w \), and is a number of the three cube roots of \( v \) and \( w \), the others are \( v \) and \( w \); and the only combinations which satisfy the last-mentioned condition are

\[ v = w, \quad w = w', \quad r = r', \quad r = r' \]

which are the three cube roots of the equation (1), to the exclusion of \( v + w, \quad v - w, \quad v' + w', \quad v' - w' \) and hence of \( w, \quad w', \quad r, \quad r' \). So far all is right, and the algebraical solution is complete, and may be represented thus; let \( p \) stand for any cube root of unity; then the three solutions of (1) are contained in

\[ \frac{\sqrt{p} (x + 1) + (x - 1)}{p} \]

where \( \sqrt{p} \) signifies the real cube root.

This is perfectly intelligible when \( n + d \) \( p \) is a positive quantity: for if we call the real cube root above mentioned \( K \) and \( L \), we find for the three roots of the equation, first, the possible root, \( K + 1 \); next, the pair of impossible roots contained in the formula

\[ -(K + L) \pm (K - L) \sqrt{3} \]

If we apply this to the equation \( 2x - 25 = 0 \), where \( P = 9 \), and \( Q = 25 \), we shall find the roots, \( -5, \quad 5, \quad 5 \), and the roots are \( 4 - 2 \sqrt{3} \), and \( -2 - 2 \sqrt{3} \). But if it should happen that \( Q^2 + 4 \) is negative (which requires that \( P \) should be negative and \( \sqrt{3} \) numerically greater than \( Q \)), we return to the original form of the solution, and find that the roots of the equation are contained in the formula

\[ \{ V + W \sqrt{1} \}^1 + \{ V - W \sqrt{1} \}^1 \]

where \( \sqrt{1} \) means any cube root, there being a tacit condition that the product of the two cube roots must be possible. \( V \) stands for \( -Q \), and \( W \) for the possible (though perhaps irrational) quantity \( \sqrt{Q^2 + 4} \). Now, it is shown in books of algebra that every cube root of \( V + W \sqrt{1} \) is of the same form, say \( F + G \sqrt{1} \), and that the corresponding cube root of \( V - W \sqrt{1} \) is \( F - G \sqrt{1} \). If then we assume

\[ \{ V + W \sqrt{1} \} = F + G \sqrt{1} \]

and by addition of their cubes, and division by 2,

\[ V + W = 3F \]

between which the elimination of \( G \) gives
Hence \( P - \sqrt{V^2 + W^2} \); and \( P - IV = 0 \).

From which it would seem that we might find \( P \), and then \( G \). But on examining this last equation we find it to be precisely that kind of algebraic equation about which the difficulty arose; for the \( P \) of this equation is negative, being \(-\sqrt{V^2 + W^2}\), and the \( G \) is \(-\frac{1}{IV}\); and \( V \) being \(-\sqrt{V^2 + W^2}\), is numerically greater than \( 1Q \), or \( \sqrt{V^2 + W^2} \).

Hence, this case is called irreducible; for though, as will be shown immediately, there are three possible values of the expression \( (3) \), yet every direct algebraical attempt to find them leads to the same difficulty in another form.

If \( P \) and \( G \) could be determined, one value of \( (3) \) is \( 2P \); and taking the other cubic roots, selecting only those pairs of whose products are possible, the following expression for \( r \) may be obtained,

\[-1 \pm \sqrt{\frac{1}{2}} \bigg( P + \sqrt{P^2 + W^2} \bigg) \]

which are both possible. Consequently, the irreducible case of a cubic equation is that in which the three roots are all possible.

Let us apply the preceding to \( x^3 - 21x^2 + 50x = 0 \). Here \( P = -21, V = 50 \), and \( \sqrt{V^2 + W^2} = 543 = 51 \times 51 \). Hence the roots are contained in

\[-10 + 9 \sqrt{\frac{1}{2}} \bigg( 1 \pm \frac{1}{2} \bigg) \]

By trial, or by semi-algebraical methods, described in most books of algebra it may be found that a cube root of \(-10 + 9 \sqrt{\frac{1}{2}} \bigg( 1 \pm \frac{1}{2} \bigg) \) is \( 2 + \sqrt{3} + 1 \); whence \( P = 2, G = \sqrt{3} \). Hence one root \((2, F)\) is \( 4 \); the second and third \((-\sqrt{3} + \sqrt{3}, \sqrt{3})\), are \(-2 + 3 \sqrt{3} \) and \(-2 - 3 \sqrt{3} \) or \( 1 \pm 3 \sqrt{3} \).

But the best method of obtaining the roots is by having recourse to a registry of the roots of cubic equations, which is in the hands of every person, namely, the tables of sines and cosines, by which also the theorem of Bombelli will be established, namely, that the difficulty of the irreducible case answers to that of the reduction of an angle in geometry. It is proposed then, by means of trigonometry, to calculate the values of \( (3) \). Assume \( V = \cos \theta, W = \sin \theta, \) or find \( r \) and \( \theta \) from

\[ r = \sqrt{V^2 + W^2}, \tan \theta = \frac{W}{V} \]

in which the sign must be given to \( r \), which gives \( r \cos \theta \) the sign of \( V \). Then, by De Moivre's theorem [NEGATIVE AND IMPOSSIBLE QUARTIC (36)],

\[(\cos \theta \pm \sin \theta) = \cos \theta \pm \sin \theta \sqrt{-1} \]

in which, by substituting \( 0 + 360^\circ \) or \( 0 + 720^\circ \) for \( \theta \), the equation \( \theta = \sqrt{\theta} \) is still satisfied, and while the first of the preceding equation is not altered in appearance, the different values of the cube root appear on the second side. From this we see that there are no other than \( 2 \sqrt{r} \cos \theta \); the three values of which, obtained as just noted, are

\[ 2 \sqrt{r} \cos \theta, 2 \sqrt{r} \cos \left( 120^\circ + \theta \right), 2 \sqrt{r} \cos \left( 240^\circ + \theta \right) \]

which may thus be written:

\[ 2 \sqrt{r} \cos \theta, 2 \sqrt{r} \cos \left( 120^\circ + \theta \right), 2 \sqrt{r} \cos \left( 240^\circ + \theta \right) \]

Thus, in the preceding example, which gives \( V = 10, W = 9 \sqrt{3}, \) we find \( r = 1060 + 4433 = 543 \); whence \( \sqrt{r} = \sqrt{\sqrt{3}} \). And tan \( \theta = 6 \sqrt{3}, \) whence \( \theta \) is found to be \(-\frac{157^\circ}{2} \). But, of course, through it, the same \( \cos \theta \) that \( 79^\circ \) \( 6^\circ \) \( 2^\circ \) \( 29^\circ \) \( 45^\circ \) \( 3^\circ \) \( 35^\circ \) \( 35^\circ \) \( 35^\circ \) \( 35^\circ \), are the angles on which the required values depend. The cosines of these angles, severally multiplied by \( 2 \sqrt{r} \), \( 2 \sqrt{r} \), and \( 2 \sqrt{r} \), give results as near to \( -5, 1, \) and \( 1 \) (the values found), as the unavoidable errors in the last places of logarithmic results, and the preceding rejection of fractions of seconds, will permit.

IRRIGATION. Of all the substances which concur in the vegetation and growth of plants water is the most essential; without moisture the seed cannot germinate, nor can the plant receive nourishment. Hence in warm climates, where rains are periodical, and where the soil is dried and parched by a continued evaporation, no verdure exists, except where springs or rivers supply the waste of moisture. The more the air is heated, the more rapid the evaporation, the more luxuriant is the vegetation, provided there be an abundant supply of water. This circumstance has suggested the plan of diverting streams and conducting them in channels to fertilize as great an extent of land as possible. In China and in India, as well as in Egypt, ingenious modes of watering lands have been adopted from the most remote ages. No expense has been thought too great to secure a supply of water, and to distribute it in the most advantageous manner. It seems at first strange, however, that there is great heat in the air, water alone will supply the necessary food for the growth of plants. It is probable that the component parts of the atmosphere are more easily separated, and that, by the combinations of those with water, in a high temperature than in a lower; or that the leaves and green parts of vegetables imbibe water in a state of solution in air, and that in this state it is more easily decomposed. Atmospheric air and water contain all the principal elements of the universe, without oxygen, hydrogen, carbon, and nitrogen; the remainder are either found in the soil or diffused through the water. Manures seem to act principally as stimulants or re-agents, and are themselves composed of the same elements: they are of no use unless diffused or dissolved in water; but when the water is impregnated with animal or vegetable substances, the effect is far greater and more rapid than when the water is pure.

Water has also an important office to perform, if we admit the principle of water as level by Mason; that plants reject through their roots the mixture of the sedimentary matter or the residue of its elaboration, and that of no further use to the plant, but rather injurious if they are again imbided by the roots. Plants seem to require a removal of their contents, as an interchange when lateral supplies are found in a small space. If this is not effected, they suffer and contract diseases. The percolation of water through the soil is the means which nature has provided for this purpose. Hence we can readily suppose that the mere washing of the roots is of benefit to growth. This great measure must be ascribed the fertilizing effects of pure and soft running water.

If water stagnates and is evaporated, and the noxious matter held in soluble form in the soil, all the advantage of irrigation is lost, and the better kind of grasses are succeeded by rushes and coarse aquatic plants, as may be seen in all marshy spots. The circulation of the water therefore appears to be as necessary as its presence; and, provided there be a sufficient supply of water of a proper quality, the more porous the soil, and especially the subsoil, is, the more vigorous is the vegetation. It is on this principle alone that we can rationally account for the great advantage of irrigation in those climates where rain is abundant, and where soil, which is most benefited by having a supply of water running through it, is of a nature to require artificial drainage as an indispensable preliminary to being made fertile by irrigation. By keeping these principles in view the lightest will be more and more the technical part of irrigation, which, having been long established by men, before these principles were thought of, depends not on their correctness, but only confirms their truth.

The whole art of irrigation may be deduced from two simple rules, which are the first, to have a sufficient supply of water during all the time the plants are growing, and secondly, never to allow it to accumulate so long as to stagnate. We shall see hereafter one apparent exception to this last rule, but it will be readily explained.

The supply of water must come from natural lakes and rivers, or from artificial wells and ponds, in which it is collected in sufficient quantity to disperse it over a certain surface. As the water must flow over the land, or in channels arranged through it, the superficies above which the level of the land to be irrigated. This is generally the most valuable object of the natural receptacle of the waters, whether it be a lake or the sea, to which they run. The taking of the level is therefore the first step towards an attempt to irrigate any lands.

Along the banks of running streams nature points out the declivity. A channel which is a little higher than the natural level of the natural receptacle of the waters, whether it be a lake or the sea, to which they run. The taking of the level is therefore the first step towards an attempt to irrigate any lands.

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of the channels are regulated by the nature of the surface and other circumstances, which vary in almost every situation. A few examples will give to those who are not acquainted with the best modes of irrigating land a fairly accurate notion of the system. We shall suppose a river to run with a rapid current between high banks. At some point of its course a portion of the water is diverted into a canal dug along the bank, with a very small declivity. The water in this canal will flow into the river, and, while it will keep the same level as that part of the river where it has its origin, thus the water may be carried over lands which are situated considerably above the bed of the river farther down. All the higher points of this canal and the river may be irrigated if there is a sufficient supply of water. The canal may be carried to a considerable distance from the river. The size of the canal and its declivity depend on the quantity of water which may be made to flow into it. A dam is often constructed across a river, in order that much of its water as is possible may be diverted, and the original channel is often laid quite dry, to take advantage of all the water at the time when it is advantageous to irrigate the land. To have an entire command of the water there are flood-gates on the main channel and on the lesser branches. By opening or shutting these the water may be stopped or made to flow as may be required. It must be remembered, that to carry water to a considerable distance, and in great quantity, a lane with a more rapid declivity is a matter of calculation whether it is most advantageous to bring a smaller quantity to a higher point, or a greater abundance somewhat lower. Having a certain command of water, it may be carried from the main channel by smaller branches to the highest points, so that the water is equally distributed over the land immediately below. Every branch which brings water over the land should have a corresponding channel below, to carry it off; for the water must always be allowed to stop and stagnate. When it has run 15 or 20 feet, according to the declivity, over the land situated below the feeder, or the channel which brings the water, it should be allowed to run off to be carried away to irrigate the lands which lie still lower. Finally it runs back into the river from which it was taken, at a lower point of its course. When there is a considerable fall and a sufficient supply of water, a series of channels may be made, so situated below each other, that the second collects the water which the first has supplied, and in its turn becomes a feeder to irrigate the lower parts of the declivity: a third channel receives the water and distributes it lower down, until the land is irrigated from the river. This method is only applicable where there is a considerable fall of water and a gentle declivity towards the river. It must be remembered that on the declivity that the water is deterred for the purpose of irrigation, where it has been taken up some which are detrimental to vegetation, and being saturated with them: at least this is the most probable opinion when all circumstances are taken into the account. The general principle of irrigation may be described as the introduction of a portion of the water in the surface of the land in succession without there being any very marked difference in the effect: beyond this it rapidly loses its fertilizing qualities. This is not owing to the water having deposited the fertilizing substances which it held in solution, or being dissipated through it, but it is called evaporation taken up some which are detrimental to vegetation, and being saturated with them: at least this is the most probable opinion when all circumstances are taken into the account. The general principle of irrigation may be described as the introduction of a portion of the water in the surface of the land in succession without there being any very marked difference in the effect: beyond this it rapidly loses its fertilizing qualities. This is not owing to the water having deposited the fertilizing substances which it held in solution, or being dissipated through it, but it is called evaporation taken up some which are detrimental to vegetation, and being saturated with them: at least this is the most probable opinion when all circumstances are taken into the account.
roots of the grass, which proves to demonstration that the waters of the Avon contain all the principles essential to rapid vegetation. Great attention is required, and some experience, to irrigate meadows, so as to give the greatest profit.

In hot weather, when we should imagine that the land must be drained, the natural grass will perhaps be injured, or over it, much mischief may be done by injudicious flooding. In winter, on the contrary, the land may be covered with water for weeks without injury; and if an earthy deposit takes place, the subsequent fertility is greatly increased. But this is not properly irrigation; it is inundation, and the effects depend on entirely different causes. When low meadows are inundated in winter and spring, it is the mudliness of the water which enriches the land: a fine layer of extremely divided matter is deposited, and when the water subsides this acts as a coat of manure.

Water may be carried in small channels through meadows without being allowed to overflow, and in this case the effect is similar to that caused by rivers or brooks which wind slowly through valleys, and produce a rich verdure along their course. This is watering, but not properly irrigating. When this is done judiciously, the effect is very nearly the same as when the land is irrigated; and in hot climates it may be preferable, by giving a constant supply of moisture to the roots, while the plants are growing. The greatest advantage of water-meadows in England is not so much the superior quantity of grass or hay which is obtained when they are mown, as the early feed in spring, when all kinds of nutritious fodder are scarce; when the turnips are consumed before the natural grass or the rye-grass for that purpose is fit to be fed off, the water-meadows afford abundant pasture to ewes and lambs, which by this means are brought to an early market. The farmer who has water-meadows can put his ewes earlier to the ram, without fear of wanting fodder for them and their lambs in March, which is the most trying season of the year for those who have sheep. At that time an acre of good grass may be worth as much for a month as a later crop would for the remainder of the year. When it is intended to form a water-meadow on a surface which is nearly level, or where a fall of only two or three feet can be obtained in a considerable length, the whole of the land must be laid in beds about 20 or 30 feet wide, the middle or crown of these beds being on a level with the main feeders, and the bottoms or drains on a level with the lower exit of the water, or a little above it.

To form these beds most expeditiously, if the ground is already in grass, the sod may be pared off and relaid after the beds are formed, by which means the grass will be sooner re-established; but except in very heavy soils, where the grass is some time in taking root, the easiest and cheapest way is to plough the land two or three times towards the centre, and dig out the drain with the spade: the earth out of the drains, and that which is taken out of the upper trenches of feeder, may be spread over the bed to give it the proper slope. A roller passed over the bed in the direction of its length will lay it even, and the seeds of grasses being sown over it, the water may be let on for a very short time to make them spring. As soon as the grass is two or three inches above ground a regular flooding may be given, and in a very short time the sward will be complete. Instead of sowing seed, tufts of grass cut from old sward may be spread over the newly formed beds, and they will soon cover the ground. The Italian ryegrass, which has been lately introduced into this country from Switzerland, grows so rapidly, that if it be sown in February, or as soon as the snow and frost are gone, it will afford a good crop to feed off in April, or to mow for hay by the beginning of May; and after that it may be cut repeatedly during the summer. But where the soil is good and the water abundant, good natural grasses will spring up without much sowing, and soon equal the old water-meadows.

It seems essential to the formation of a good water-meadow that the bottom be porous and free from stagnant water; hence under-draining is often indispensable before a water-meadow can be established; and a peat-bog, if drained and consolidated, may have water carried over its surface, and produce very good herbage. If the soil is a very stiff clay, draining is almost indispensable where a water-meadow is to be made. The more porous the soil the less depth of water is required, which is not obvious at first sight; but the clay lets the water run over the surface without sinking into the roots, whereas the porous soil is soon soaked to a considerable depth. The water must therefore be longer on the clay than on the sand or gravel to produce the same effect. If the water is properly applied all kinds of soils may be converted into fertile water-meadows. On very stiff clays a coat of sand or gravel, which can be easily put on, will greatly improve the herbage. It should not be ploughed in, but laid on the surface two or three inches thick: chalk will also improve the herbage.

The usual time of letting on the water on water-meadows is just before Christmas, and it may continue to flow over the land as long as the frost lasts: in mild weather it may be turned off during the day and put on again at night until the frost is gone. The grass will soon begin to grow, and be ready to be fed off. When this is done the water is immediately let on for a short time, and turned off again to allow the ground to dry after a few days' flooding, and the water is let on again at short intervals. The warmer the air is, the shorter time must the water be allowed to cover the meadows. As soon as the grass is five or six inches long it must be left dry entirely till it is mown or fed off. In summer the floodings must be very short; seldom more than twenty-four hours at a time, but frequent. Thus a great weight of grass may be obtained year after year without any manure being put on the land, care being taken that where the surface is not quite even the hollows be filled up with earth brought from another place, or dug out of the drain, if that should be partially filled up with the soil which the water has carried into it. We alluded before to a case where water may remain a considerable time on the land without injury; this is, when there are inundations from rivers, which rise above their beds in spring and cover the low meadows which lie along their
banks. In this case the grass, which has not yet sprung up, is protected from the cold, and if there is a deposit from the water there is a considerable advantage. But when the grass subsides, it must be made to run off entirely, without leaving small pools, by which the grass would invariably be injured. Small ditches or channels are usually dug, by which all the water may run off, unless where the subsoil is very porous, or the land is well under-drained, which is seldom the case in these low meadows, for the drains would be apt to be choked by the earthy deposit from the water. These inundations can sometimes be regulated by means of dykes and flood-gates, in which case they partake of the advantages of irrigation, and also of that disposition of fertilizing mud which is called warping. [Warning.]

The preceding plan (Fig. 1) will explain what has been briefly said respecting the different modes of irrigating land. A A is a river which has a considerable fall, and then flows through a level plain. A considerable channel is cut at B, where there is a rapid fall over a natural or artificial dam. This channel is carried round a hill and supplies a series of channels, C, C, C, placed below each other, forming catch-work along a declivity. A portion of the water goes on to D, where it supplies the feeders of a regular set of ridges, or beds, made as before described, from which the water returns into the river by a main trench, into which all the drains run.

On the other side of the river, where the slopes lie somewhat differently, there are several examples of catch-work, the black line representing the drains which receive the water after it has flowed over the surface and carry it into the river below. It is so arranged that all the feeders are nearly horizontal, to allow the water to flow over their sides.

Fig. 2.

Fig. 3 is the section of catch-work. a, a, are the feeders; b, the drain; c, c, c, intermediate channels which act as feeders and drains.

Fig. 3.

Fig. 4 is a profile to regulate the flow of water.

IRRITABILITY. [Hallerc]

IRITISCH. [Sibera]

IRVINE, a royal borough and seat town in the district of Cunningham and county of Ayr, 63 miles southwest by west from Edinburgh. It is situated on a rising ground to the north of the river Irvine, and about half a mile distant from the harbour, which lies to the south-west of it. The town is dry and well aired, and consists of one broad street, which communicates with the southern suburbs by means of a narrow stone bridge of four arches, rebuilt in the year 1826. The principal public buildings are the church and town-house. The harbour is commodious, having from nine to eleven feet water on the bar at springs tides; though during violent gales from the south it rises to sixteen feet. The rapid growth of Kilmarnock has tended greatly to increase the trade of Irvine, which is the nearest seaport to that town. The dues levied at the port during the five years preceding 1832 averaged 450l. per annum. Ship-building is carried on upon a small scale.

Irvine, in union with Ruthven, Inverary, Campbeltown, and Ayr, returns one member to parliament. The school, which is in the Latin tongue, is taught, is ably conducted by the rector and an English assistant. The population of the burgh and parish of Irvine in 1831 was 5290. (Carlisle's Dictionary; Beautea of Ireland; Population Returns, &c.)

ISAAC, of the ten Athenian orators, was a native of Chios, or, according to other accounts, of Athens. Dionysius could not ascertain the time of his birth or death. "As this appears certain," he says, "that he belonged to the period after the Peloponnesian war, and he lived to see the time of King Philip. Hermippus, who wrote the lives of the pupils of Isocrates, has recorded nothing more of Isaeus than that he was a pupil of Isocrates, and mentions that he has enjoyed the society of the chief philosophers of his time.

The author of the Life of Isaeus, attributed to Plutarch, mentions sixty-four orations of Isaeus, fifty of which were allowed to be genuine. At present there are only twelve extant, all of which are of the oration class (Hephaisterion), and all treat of matters relating to wills and the succession to the property of testators, or persons intestate, or to disputes originating in such matters. These orations, after they had seen the light in the school of Isocrates, appeared to the laws of Athens as to the disposition of property by will, and in cases of intestacy, and also as to many of the forms of procedure. Dionysius, in his labourous comparison between Lyssias and Isaeus, sums up as follows:—"In reading Lyssias and Isaeus, it is impossible to keep in mind the absorbing nature of Isaeus' work, and the artificial manner or without perfect sincerity, but everything appears natural and true; thus forgetting that it is the height of art to imitate nature. In reading Isaeus there is not the contrary feeling: nothing is spoken naturally and without an effort, not even what really is so spoken; but every thing seems of set purpose, frame to deceive, or for some other sinister end. One would believe Lyssias, though he were stating what was false; one could not, without some feeling of untruth, consent to be deceived even when he speaks the truth." Again:—"Isaeus seems to aim at truth, but Isaeus to follow art: the one strives to please, the other to produce effect."

Dionysius adds that, in his opinion, with Isaeus originated that vigour and energy of style (fervor) which his pupil Demostenes carried to perfection. So far as the extant specimens of Isaeus enable us to form an opinion, this judgment appears to be just. The perspicuity and artless simplicity of the style of Lyssias are admirable; but on reading Isaeus we feel that we have to do with a subtle disputant and a close reasoner, whose arguments are strong and pointed, but have too much the appearance of studied effect, and for that reason often fail to convince.

The best edition of the text of Isaeus is by Beckler. The oration on the 'Inheritance of Meneoeus' was first published by Tyrwhitt, London, 1785; and that on the 'Inheritance of Cleonymus' first appeared in its complete form at Milan, 1813, by Ang. Mai. The translation of Isaeus by Sir William Jones (1772, 4to) will give an English reader an ancient notion of this orator; but the translation is somewhat deficient in critical accuracy, and also wanting in force.

ISAIAH (ישעיה, LXX. 'Ishay), one of the most celebrated of the Hebrew prophets, lived during the reigns of Uzziah, Jotham, Ahaz, and Hezekiah (Is. 1: 1; vii. 1; xiv. 26; xxvi. 33—xxxvi.), and was contemporary with the reigns of Hosea, Joel, and Amos. His book is partly historical, partly a reflection of the time, and partly a prophecy of the future, and contains much of the history of Judah; but according to another tradition, he is the same person as the prophet Amos. The latter tradition is evidently wrong; since the name of the prophet is לוי, while the name of the father of Isaiah is לֶוֵי. It is probable, from the 6th chapter of the book, that Isaiah entered upon his prophetic office in the last year of the reign of king Uzziah, B.C. 759. He continued to prophesy at least till the fourteenth year of the reign of Hezekiah, B.C. 713 (2 Kings, xix. 11—7; Is. xxxvi.—xxxvii.), a period of forty-six years. According to an ancient Jewish tradition, which is also given in the apocryphal book of the 'Ascension of
A considerable part of the prophecies of Isaiah are supposed by most Christian divines to relate to the Messiah. The following list is taken from Gray's 'Key to the Old Testament,' pp. xlix. 111; and references are given in the New Testament. See Matt. xvi. 17, 18; Matt. xxviii. 18, 19; and other passages.

Isaiah, he was put to death during the reign of the cruel Manasseh (2 Kings, xxxi. 16); who is said by Josephus (Antiq., x, 3, 1) to have slain all the prophets in Jerusalem. Manasseh contrived his reign to last twenty years, to have been composed by the prophet himself. But it is the common opinion of the critics in Germany usually called Rationalists, that the book of Isaiah is a collection of prophecies delivered by different persons, which were collected and arranged in their present form during the Babylonian exile. The whole of the latter part of the book, from ch. xl. to ch. lxxvi., is supposed to have been written at the first thirty-nine chapters is addressed to other authors than Isaiah. Some critics have called the book a 'poetical anthology.' This opinion was first maintained by Koppe, and has been supported by Döderlein, Justi, Eichhorn, Bauer, Paulus, Rosenmüller, Berthold, De Wette, Auguste, and at greater length by Eichhorn, 1821-9.
The best arguments in defence of the common opinion are given by Jahn in his 'Introduction to the Bible,' by Professor Lee in his 'Sermons and Dissertations on the Study of the Scriptures,' and by Hengstenberg in his 'Recherches sur la Divinité du Prophète,' 2 vols. 1834.

If we admit Isaiah to have been the author of the book which bears his name, it is nearly certain that the prophecies are not arranged at present in the order in which they were delivered, for the third verse of the book (xl. 1) contains an account of the inauguration of the prophet in his sacred office, and appears to have been the first prophecy that was published by him. The twenty-second chapter consists of two separate parts which have no connection with each other; and were added after the death of Isaiah, the former half of the chapter (1-14) containing a prediction of the invasion of the Medes and Persians, while the latter half gives an account of the disgrace of a courtier of the name of Shabna during the reign of Hezekiah. It is therefore difficult to give any connected account of the contents of the book, but the following arrangement, taken from Genienius, is perhaps the best upon the whole.

The first part (i.-xxii.) principally consists of prophecies of the destruction of the nations, and accounts of the conversion of the Gentiles; the second part (xxiii.-xxxix.) contains predictions against the Babylonians, Assyrians, Philistines, Moabites, Syrians, Egyptians, and other foreign nations; the third part (xxxiv.-xxxvi.) contains a highly abstruse account of the invasion of Samaria, contains prophecies of the invasion of Judaea by the Babylonians, of the destruction of Jerusalem, the captivity of the people, and their final restoration to their native country; the fourth part (xl.-lxxvi.) principally refers to the restoration of the church; it contains many prophecies respecting the deliverance of the Jews from captivity, the destruction of idols, the spread of the true religion over the earth, the conversion of the Gentiles, and the coming of the Messiah.

The prophecies of Isaiah have always been held in great estimation by the Jews. Jesus, the son of Sirach, speaks of Isaiah as 'a prophet great and faithful in his vision, who saw by an excellent spirit what should come to pass at the last, and comforted them that mourned in Zion.' He showed what should come to pass for ever, and secret things before they came.' (Ecclesiasticus, xlvii. 22-25.) Josephus and Philo frequently speak of Isaiah in terms of the greatest respect; and his prophecies are considered as the wisest written by man, the New Testament. See Matt. xii. 22, 33, compared with Is. vii. 14; Matt. iii. 3, with Is. xi. 3; Matt. iv. 14-16, with Is. i. 12; xvi. 7; Matt. xxvii. 17, with Is. xi. 4; Matt. xiv. 13, 15, with Is. vi. 9, 10; Matt. xxvi. 13, with Is. lxxiv. 6; Acts, ii. 25, with Is. liii. 10; Rom. viii. 25, 37, with Is. lxxvi. 9, 10; Rom. ix. 27, 28, with Is. x. 22; Rom. ix. 30, with Is. ix. 9; Rom. xii. 3, with Is. vii. 14; Matt. ii. 15, 16, with Is. vii. 6; Acts, xxvii. 28, with Is. vi. 9; Rom. xi. 2, 6, with Is. vii. 14; Is. ii. 2; 2 Peter, iii. 13, with Is. xlv. 17.}
action having taken place in this island; and Timmies
mention a violent eruption of Epomea a little before his
time. The soil of Ischia is very fertile, and produces corn,
abundance of vines, and all sorts of fruit. The hills are
covered with chestnut trees. The island is about twenty
two miles in circuit, and contains 24,000 inhabitants, who
have a reputation for good behaviour much above that
of their neighbours of the mainland. Robbery and murder
are rare in the hand, and the houses are frequently left by
the inmates with the keys in their pockets without any
suspicions or fear. The people are industrious, very
frugal, and good tempered. Ischia forms part of the
province of Naples; it contains four small towns or villages:
1. Foria, the residence of the bishop's seat and cathedral;
2. Bursa, which is the most commercial place on the island;
3. Casamicciola, the neighbourhood of which contains excellent
clay, of which a great quantity of pottery is made and sent
to Naples; 4. Lacco; besides several hamlets. The island
abounds with mineral springs, which are much frequented
by invalids from Naples, and are found efficacious for
curing several distempers. Ischia is altogether one of
the finest islands near the coast of Italy. (De Quintins, Insulae,
*deu de Nauis Peire, S. E. de Nauis, Naples, 1729."
G. Poulett Scrope, *On the Volcanic District of Naples,*

ISEO [BAVARIA]

ISEP, a river in the south-eastern part of France, be-
ginning to the system of the Rhone. It has its source near
Mont Isere (13,522 feet high), in the chain of the Pennine
Alps, and flows 26 miles north, and then 12 miles west
from Mont-Cenis, the most northerly point of its course;
and again turning south-west, flows 22 miles to Montmellian,
which contains 2104 inhabitants. In the upper part of its
course it receives some small tributaries, the combined
streams of the Darou and the St. Jean at Montiers; the
combined streams of the Arla and Duron at Conflans; and,
between Conflans and Montmellian, the Arc, an alpine
stream 80 miles long, which passes the villages of Mont
Maurois. Just below Montmellian the Isere turns to the
south, crosses the French frontier, gradually bends to the
south-west and west, passes Grenoble, dividing that town into
two parts, and with the Drac, is an important boundary.
From the junction of the Drac the Isere flows north-west
for a short distance, and then turning to the south-west,
flows past St. Marcellin and Romans into the Rhone,
which it joins between Tournon and Valence. The length
of the Isere below Montmellian is about 90 miles; its whole
course is about 160 miles. The Drac rises in the department
of Hautes Alpes, and has a course of 72 or 73 miles. It receives the Sevreys,
the Bonne, the Romanche, and other streams.
The Isere is of moderate breadth, but of great depth. Its
waters are of a blackish colour, which is attributed by some
to the débris of the slate rocks of the Tarentaise, a district
in Savoy, through which it flows. The stream is liable to
floods, which cause the most disastrous effects. It is
useful for floating timber from Montiers, 34 miles above
Montmellian. Between the last-mentioned town and Gren-
oble the navigation is very difficult, on account of the
great number of islets in the bed of the river. Iron, hemp,
linen and woollen cloth, and wood are carried down the
stream. Barges laden with salt and other merchandize ascend it from the Rhone to Grenoble and Montmellian.

ISEP, a department of France, taking its name from the
river above mentioned. It is bounded on the north by
the department of Hautes Alpes; on the east by the Rhone;
the west by the departments of Rhône, Haute
Loire, and Ardèche, from which also it is separated by the
Rhône; on the south-west and south by the department of
Drôme; on the north-east and north-east it is bounded by
the Drac. Its form, though irregular, approximates to that of a parallelo-
gram; having its sides facing the north-east, south-east,
south-west, and north-west respectively. Its greatest length
is from the north-west, on the banks of the Rhône, near
Lyon, to the south-east, not far from Briançon, in the
department of Hautes Alpes, 92 miles; its greatest breadth
is at right angles to the last, from near the little town of
Ambert, the Alps, to the bank of the Isère, St.
Marcellin, 55 miles. Its area is 3205 square miles, which
is considerably above the average area of the French depart-
ments, and above the area of any English county. In
Yorkshire, a county about equal to the present area of Shrop-
shire, Staffordshire, and Worcestershire. The population
by the census of 1831 was 559,226; by that of 1836, 573,645.
showing an increase in five years of above 23,000 in a popu-
lation which had increased for the last 20 years to only
179 inhabitants to a square mile, which is above the average
density of population in France, but very far below
that of the above-mentioned English counties. Grenobol,
the capital, is on the banks of the Isère, in 45° 11' N. lat.
and 5° 38' E. long.

Nearly the whole of this department is covered with
mountains. A branch of the Alpes, which joins the prin-
cipal chain between Mont Genèvre and Mont Cenis, and
extends to the Rhône, forms a boundary between the
department and the Sardinian dominions. In this branch
or in its subordinate ramifications are the summits, Mont
Trois Ilions, 12,737 feet high; Col de Saix, 10,971 feet;
Pie de Belladone, 10,229 feet; La Roche Grenico, 9,757
feet; the Col de Salis, 9,071 feet; Col du Giffre, 9,453 feet;
du Gif, 1014 feet. Some of the summits of this moun-
tainous tract are covered with perpetual snow, and cedars.

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being to the system of the Rhone. It has its source near
Mont Isere (13,522 feet high), in the chain of the Pennine
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the Drac. Its form, though irregular, approximates to that of a parallelo-
gram; having its sides facing the north-east, south-east,
of which are in good repair; the rest is out of repair or unfinished. The aggregate length of the Routes Départementale is 264 miles, more than seven-eighths of which are in good repair. The bye-roads and paths have an aggregate length of nearly 1400 miles.

The river and navigation is made up of that of the Rhône, 97 miles; and that of the Isère, 60 miles; together 157 miles.

The climate differs much according to the nature of the surface. In the plains the summer is very hot and the winds violent; in the marshy flats the temperature is lower and the air moist; in the valley there are some times rapid changes of temperature, and at other times long periods both of rain and drought. The high mountains have but two seasons, a long winter of nine months, with a brief summer. The air of the depôts is pure, and the healthy kales render the crops very uncertain. From the different elevation of the surface the natural productions are of very various character. The valley of Bourg d'Oisans, the most elevated of the larger valleys, produces rye, barley, potatoes, and a considers quantity of hay: the valley of St. Laurent du Pont, or of the Chartreuse [Chartreuse], is in general covered with pine forests; some spots produce grain and hemp: the valleys of Voreon and Vizille are chiefly productive of hemp: the valley of the Isère Geand, one of the most fertile of France, produces grain of all sorts, wine, fruit, &c. The more level districts of the department have generally a dry, sandy, or stony soil; some parts however are marshy. The advanced stages of agriculture has been more advanced in these districts; some of the marshes have been drained, and the drier soils are improved by irrigation. The crops consist of wheat, rye, pulse, hemp, wine, fruit, and hay: and notwithstanding the injury done by a changeable climate and from the vicinity of the Great Lakes, the produce of the department exceeds its consumption. The wines, especially those of the neighbourhood of Vienne, are in good repute.

The forest yields beech, elm, and especially pine timber.

Many horses are bred; the mules are excellent; the asses small. The cattle, but the cows give much milk, and the cheese called Sassenage cheese, from a village or small town of that name near Grenoble, where it is chiefly sold, is excellent. Sheep are numerous, and have a fine soft fleece: innumerable hogs are reared, the swine from the neighbouring districts to the upland pastures of the Alpine valleys. Goats, pigs, and poultry are numerous; and a considerable number of silk-worms are reared in those parts which admit of the growth of the mulberry. Of wild animals there is considerable variety: the bear, the lynx, the chamois, the wild goat, and the marten, are found in the mountains: game is tolerably plentiful, and fish abundant.

The mineral wealth of the department is considerable. Gold is lead, copper, iron in abundance, zinc, mercury, antimony, bismuth, cobalt, coal, rock-crystal, granite, marble, alum, sulphur, gyspum, marl, potter's clay, and sandstone are found; but of these, only lead, iron, and coal, with some marble quarries and clay pits, are worked. Gold and silver mines have been abandoned, not being sufficiently productive to pay more than the cost of working them. There are several mineral springs.

The department is divided into four arrondissements as below: it contains forty-five cantons, or districts under a justice of the peace, and 555 communes.—


<table>
<thead>
<tr>
<th>Name</th>
<th>Area</th>
<th>Pop. 1836</th>
<th>Communes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grenoble, S. &amp; E.</td>
<td>1599</td>
<td>213,568</td>
<td>214</td>
</tr>
<tr>
<td>La Tour du Pin, N.</td>
<td>512</td>
<td>129,825</td>
<td>129</td>
</tr>
<tr>
<td>St. Marcellin, S.W.</td>
<td>113</td>
<td>85,127</td>
<td>85</td>
</tr>
<tr>
<td>Vienne, W.</td>
<td>681</td>
<td>145,011</td>
<td>132</td>
</tr>
</tbody>
</table>

Total: 3263 573,645 555

In the arrondissement of Grenoble are the capital (population in 1836, 32,999) [Grenoble], Voreppe (population 1560), Sassenage, Goncelin, Thiers, Allier, and Fort Barraux, all of our near this town; also the pastoral commune (population 2785), Monnetier de Clermont, Vit, Verces, and Chaux, in or near the valley of the Drac; Le Bourg d'Oisans (population 3082) [Bourne], and Vizille (population 2242 town, 2519 commune), in that of the Romanche; Le Bourg de Vanoise (population 1500), St. Laurent de Pont (population 3156) on the Guiers; the establishment, formerly monastic, of the Grand Chartreuse

[Chartreuse, Grando), in the desert near St. Laurent: Chirens, and Voreon (pop. 6924). At Vizille are manufactories of printed cottons, yarn, and paper. Sassenage is the great mart for the cheese of the surrounding districts. It is also remarked for a natural curiosity,—two cylindrical excavations in two granites. One is a Protestant cemetery, once supposed to presage the abundance or failure of the harvest. Voreon is the mart for the linens manufactured in the department.

In the arrondissement of Le Touret du Pin are the capital (population in 1836, 2834), Bourgoin (population 3447 town, 3726 commune), Virieu and Le Grand Temp in the Doubarie; St. Clef or St. Chef (population 3397) between that river and the Bourde; St. Geoire (population 4035) and Le Pont de Beauvoisin (population 4186) in or near the valley of the Guiers; Morellet, Quireux, and Crépieux (population 2058 town, 2491 commune), in or near the valley of the Rhone. There are mineral springs at Le Pont de Beauvoisin.

In the arrondissement of St. Marcellin are St. Marcellin (population in 1836, 2833), St. André, Beauvoir, Vinay, Lalkene, Tulisua or Tullins (population 1806 town, 3807 commune), Moinans and St. Quentin, on or near the Isere; St. Antoine on the Furand; Roybon on the Galaure; Vireville and St. Marcien in a pleasant situation, and some vine-covered hills; it is well built, and surrounded with walls. The inhabitants trade in raw silk, chesnut and walnut oil, and wine.

In the arrondissement of Vienne are the capital (population in 1836, 16,484) [Vienne], Ronsillaun, Le Pègue, and St. Symphorien, on or near the Rhone; Beureupeire (population 1922 town, 2138 commune) on the Suzzon; La Côte St. André (population 2800 town, 4586 commune), Chatonnay, St. Jean de Barry (population 1920 town, 3322 commune), St. Georges (population 1636 town, 2572 commune), Heyreux, and La Verpértie. The inhabitants of La Côte St. André carry on a considerable trade in liqueurs and in the light and sparkling white wines grown round about the Alpes.

The department contains many smelting-houses for iron, and some for lead; and a flatting-mill for copper. Iron guns for shipping, nails, and steel are manufactured; there are several potteries and a glass-house for making bottles. Silk, calico, canvas for wrappers, coarse and fine linen, cotton yarn, calico and printed cottons, thick woolen cloth the troops and for other uses, leather of different qualities, and gloves (especially at Grenoble), paper and vellum (especially at Vienne), liqueurs, mineral acids, and turpentine are made. These various articles, with wine, brandy, wool, silk, hemp, and deals, constitute the exports. The department constitutes the diocese of Grenoble; and is in the jurisdiction of the Cour Royal and the Académie Universitaire of this city, and is surrounded by a ridge of which Muns is the seat. The department is included in the seventh military division, of which the head-quarters are at Grenoble. It returns seven members to the Chamber of Deputies.

In respect of education the department is below the average of France. The proportion of young men enrolled in the military census of 1829-9 who could read and write was 29 in every 100.

This department formed in ancient times part of the territories of the Allobroges, a nation of the Celtic stock; whose southern parts were probably comprehended in the territories of two other people of Celtic race, the Segaluni and the Vaeoclti. In the Roman division of Gaul it was included in the province of Viennois; one of the two which formed the more antient and extensive province of Narbonensis. It contained the Roman cities of Vienna (Vienne) and Cularo, afterwards Gratianopolis (Grenoble). From the Romans it passed successively to the Burgundians and the Franks; and in the middle ages was included in Dauphiné. [Dauphins: Dauphiné; France]

ISIDORE, SAINT, of Polissium in Egypt, lived in the beginning of the fifth century, and wrote, according to the Monastic Schools (I audorund), in 3000 epistles, explanations of the Scriptures. 'Upards of 2000 are still extant; they are for the most part very short, and contain many repetitions. They have been published in Greek and Latin by Schoel, Paris, 1638. Dr. Heumann has published a ' Dissertation sur la Vie de l'ISIDORE' (Hamburg, 1765); but he argues that most of the letters are fictitious, and not a real correspondence.
ISIDORE, SAINT, bishop of Seville, in Spain, from a.d. 635 to 636, one of the most celebrated of the Spanish bishops, was born at Carthagena. He was well acquainted with Greek and Hebrew, and was considered by the Council of Toledo (a.d. 650) as the most learned man of his age. The style of his works is however not very clear, and his judgment appears to have been very defective.

The most important of his works are: 'A Chronicle from the Beginning of the World to a.d. 626;' 'A Book of Ecclesiastical Writers,' in 33 chapters; 'Three Books of Opinions, selected from the writings of the fathers, and especially from St. Gregory; 'Commentaries upon the historical books of the Old Testament;' 'Allegories on the Old and New Testaments;' 'Two Books of Ecclesiastical Duties,' printed in the 'De divinis Catholicae Ecclesiae Officis'; 'Two Books of the Genesis of the Old and New Testaments;' 'Twenty Books of Origines or Etymologies,' which were left unfinished and were published after his death by Braillo, bishop of Saragossa; the first edition of this work was published at Augsburg, 1472.

The works of Isidore have been published by Du Breul, Paris, 1611, and Cologne, 1617; at Madrid, 1778; and by Arevalo, Rome, 1797, 1803.

ISIDORE OF CHURCH, a learned living in the first century, who is supposed by some to have represented the church of Athens (Deip. ill.) that he wrote an account of the Parthian empire, of which there is only a small part extant, entitled Στρατιά Παρθείας, or the 'Parthian Halting-places.' This work gives a list of the eight new provinces into which the Parthian empire was divided, with the principal places in each province, and the distances between each town. This list was probably taken from official records, such as appear, from the list of provinces, &c. in Herodotus, to have been kept in the antient Parthian empire.

This work has been printed in the second volume of Hudson's 'Geographiae veteris Scriptores Graeci Minores,' with a Dissertation by Dodwell. There is also a Mémoire on Isidore by Sainte-Croix in the 60th volume of the 'Annales des Beaux Arts,' and some remarks on the 'Parthian Halting-places' in the 'Journal of Education,' vol. ii., p. 305, where the question of the site of Ecbatana is discussed and determined.

FISLINGASS is animal jelly, or gelatin, nearly pure. The best islinglass is prepared in Russia from the membranes of the sturgeon, especially from its air-bladder and sounds, which are remarkably large. These, when removed from the fish, are washed with cold water, and exposed a little in the air, in order that they may be dried; the outer skin is then taken off and rejected, and the remainder cut out, and loosely turned into rolls, according to the intended size of the pieces, which are called stipples, and are known in commerce by the names of long and short staple, and of these there are three sorts in the air. The best sort of islinglass is used for the table and in confectionery; it is also largely employed in refining wine and beer.

Islinglass is nearly colourless, but has little taste or smell, is translucent in thin pieces, and is soluble in water; one part of it dissolved in 100 parts of hot water give a solution which completely stiffens in cooling.

Islinglass is also dissolved by most acids readily, and also in solution of salt and soda, but not in alcohol. Several metallic salts and oxides have the property of precipitating a solution of islinglass, but corrosive sublimate does not produce this effect, which serves to distinguish it from albumen; but it resembles this substance in being precipitated by the action of gells or of oak-bark. Islinglass is extremely nutritive.

Accord to Gay-Lussac and Thenard it consists nearly of:

<table>
<thead>
<tr>
<th>Equivalent</th>
<th>87</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seven equivalents of hydrogen</td>
<td>7</td>
</tr>
<tr>
<td>Seven * carbon</td>
<td>42</td>
</tr>
<tr>
<td>Three * oxygen</td>
<td>24</td>
</tr>
<tr>
<td>One equivalent of azote</td>
<td>14</td>
</tr>
</tbody>
</table>

The equivalent 87

ISIS, the chief deity of Egypt, the sister of Osiris, and represented as the Goddess of Fecundity, and the cow was therefore sacred to her. She was said to have first taught men the art of cultivating corn.

The annual festival of Isis in Egypt lasted eight days, during which a general purification took place. The priests of Isis were bound to observe perpetual chastity, their heads were shaved, and they went barefooted. The goddess was often represented as a woman with the horns of a cow. Isis, however, sometimes gave the bull her hand; and her head in some instances is seen covered with a hood. Heads of Isis are a frequent ornament of Egyptian capitals on the pillars of the temples. (Deym.)

As the worship of Isis passed into foreign lands, it assumed a foreign character, and many foreign attributes, as we see from the Greek and Roman writers. Sometimes she is represented like Diana of Ephesus, the universal mother, and as the protectress of the Parthians. It is probable that the worship of Isis were probably in their origin symbolical: on one of her statues was the inscription, 'I am all that has been; that shall be; no mortal has hitherto taken off my veil.

The Parthian deity, transferred to Italy, became a cloak for licentiousness; and they were repeatedly forbidden at Rome. Tibereius had the images of Isis thrown into the Tiber, but the worship revived, and Juvenal speaks of it in an indignant strain. The Isis table in the Turin Museum, which is supposed to have been made by the order of the Emperor, is judged by Champollion to be the work of an uninitiated artist, little acquainted with the true worship of the goddesses and probably of the age of Hadrian. (Plutarch's 'Treatise on Isis and Osiris,' Wytenbach's ed., i. 441; Herod., ii. 49; 50; Strabo, v. 363.)

ISLA, or ISLAY, the most southern of the Hebrides, belongs to the shire of Argyll, and is 28 miles long and about 18 in breadth. This island, which was once the kingdom of the Norwegians, then passed to the Scots, and finally to the English. It is a mountainous island; and the island was well watered by numerous streams and rivulets, which abound with trout and salmon. Isla appears also to be rich in minerals. A copper-mine has been worked here for many years, but the ore is much mixed with lead, which renders the separation expensive and troublesome. The district of Islay comprises six parishes, besides the island of Callonsey, the united population of which in 1831 was 17,780.

(M'Culloch's 'Pacific and Western Islands of Scotland'; Popul. of Brit. Islas.)

ISLAM. [MOHAMMED]

ISLE of BOURBON. [BOURBON]

ISMAELITES, or ISMAELIANS, were originally a branch of the Ismaelites, or followers of Ali Ben Ali Taheb; Djafar Madack, the six ismaelites, having lost his eldest son Ismael, appointed his younger son Mousa to be his successor. This caused a schism among the Shites in the second century of the Hegira. Those who were Ismaeli, and also having descended to the posterity of Ismael, and not to his younger brother, were called Ismaeli, and also Karmath and Batian; in Persia they were called Talibim, from the word Talib, which means "learning," because they maintained, contrary to the orthodox Mussulmans, that men can learn the truth only by studying. They established two powerful dynasties, one in Egypt (Fatimides), and another in the Irak Ajemi, a part of Persia, the capital of which was Bagd. The Assassins of Persia and Syriay were a mutineous sect of Ismaelites. (As.)

Some of the Ismaelites of Persia, Syria, and Arabia had frequent wars against the Abbasside caliphs and the other Sunnne Mussulmans, until the dynasty of Calb was overthrown by the Tartars about the middle of the thirteenth century. At that time the Ismaelites became scattered through Asia, maintaining their tenets and observing their rite in concealment and obscurity. Their tenets appear to have been of a loose kind; they were the freethinkers of Mohammedanism. At the end of the last century they had established themselves in Persia, and had their Ismael at Kakh, a village in the district of Kham, enjoying the protection of the Shah, although considered as heretics by the Persian Shites. They had followers even in India. (J. F. Rousseau, 'Mémoire sur les Ismaeli et les Notabes,' with notes by L. de Saullet.)

Those of Syria have continued to live in the mountains of...
were under his examination, but at shorter intervals on receiving fresh supplies of sea-water. The animal appeared to Mr. Bulver to be insensible both to sound and light, as the presence or absence of either did not at all interrupt its movements; but its sense of feeling appeared to be very delicate. Minute substances dropped into the orifice of the mantle instantly excited the animal, and a column of water strongly directed expelled them from the shell; with so much strength was the water in some instances ejected, that it rose above the surface of three inches of superincumbent fluid. (Zool. Journ., vol. ii., p. 539.)
the text, goes on to state that according to Brocchi (Conch. Instab., ii. 520), two varieties of J. Cor are found in a certain part of the fossil genera, but as a subject upon which much diversity of opinion is here brought into question, he would recommend an attentive and comparative re-examination of the fossil with recent specimens, before the inquirer comes to an absolute decision upon this point. M. Deshayes, he further says, is found in Piacenza, v. A. artineta, Lam.: and he has figured J. Baschichiana (Defr., Dict. des Sciences Naturelles), a new species found by M. de Baschich in Palais, in the district of Conost. It comprises his remarks upon the fossil species of this genus: "We think we may venture to express our opinion that all the fossil species published in various books, and existing in various collections, are not distinctly characterized Isochiraut, but only the casts of the present day. Indeed, the distinguishing character of the genus is formed for the extension of the ligament from the hinge to the umbo. It is incumbent on us to mention that in Isocardia the line to which the mantle is attached, passing from one muscular impression to the other, is entire."

M. Deshayes, in his tables, records two living species and three fossil (tertary); and Isocardia Cor as both living and fossil (tertary).

O. may be referred to Musculata. M. Deshayes (ed. of Lamarck) states that it is to be presumed that the species had been added after the era in which had been the professor: this distressing privilege compelled Lamarck to have recourse to the eyes of others; and M. Deshayes is of opinion that this has been done in the case of the Isocardia. He is of the view that its external form, which has in fact an approximation to the shells of that genus. But, continues the same author, if the hinge and other essential characters had been examined, it would not have been perceived that this shell was not exactly the same as the character of an Isochiraut. He thinks that the form approaches Mya and Anatina, and that it ought to constitute a particular genus. M. Deshayes then relates that he had some time ago remarked the interesting collection of shells of the group from a small hill to the environs of Sensil, which afforded such characters as induce M. Deshayes to comprehend it in the group of Anatina as a genus. He states that this genus had already been established by Shumacher under the name of Peripond; but he thinks it right to adopt the name of De Haan, so well known for his treatise on the fossil mollusks and other important works, who had shown him a recent shell from New Holland presenting exactly the same characters as those of M. De Haan's fossil. De Haan then saw that the species could not make part of the genus Periponda, and that they ought to constitute a new genus. The shell which De Haan communicated to him was, he says, the same as that named Isocardia seminata by Lamarck. M. Deshayes describes it under the name of Carditida; and he records two species: one living, Carditida seminula, Deshayes (Isocardia seminula, Lam.), the other Carditida Michelini, Deshayes, for which he gives a synonym Hemicyclocostra Michelini, Deshayes. Mr. Lea places his genus Hepipora (of which he gives an engraving) under the family Carditida. (Contributions to Geology, svo, Philadelphia, 1833.) He states that he has in vain endeavored to place this shell in one of the established genera. In his general character he says that it approaches most closely to the Isocardia Cor, but that it cannot be placed in that genus, being destitute of teeth. It bears, he adds, some resemblance to the genus Isocera-

O. points which are urged towards the point O by pressures which are proportional to OA and OB; and further let each pressure diminish as either point approaches towards O, so as always to preserve between the pressures at any point the same proportions of the whole; and that pressure from O. Take an infinite portion of time, small that the pressure may not vary sensibly during its continuance; then [ACCELERATION; FALL OF BODIES] the velocities created and the spaces described in that time can be proportional to the pressures producing them. If then, during that time, A move to K and B to Q, AK and QB (and therefore OK and OQ) will be in the proportion of OA to OB, and the points will be at K and Q, with pressures and velocities proportional to OK and OQ. In a second such instant, C to R and D to P; and if the pressures to QR, partly due to velocities which are as OK to OQ and partly to accelerations which are in the same proportion, will be still in the proportion of OK to OQ, or of OA to OB. Consequently the whole AL is to the whole DB, and the pressure will be proportional to the velocities. For by using small accelerations, we show that the whole space moved by A in any time is to that moved by B in the same time in the proportion of OA to OB. Consequently, if the pressure is passed through by A in any time, and the direction of A's motion be AO, and the direction of B's motion be AB, the pressure is proportional to AB, and the relations of velocities to the pressures are such as is found by theory and experiment. The most complete proof is to be found in the 'Mécanique Analytique' of Lagrange. Granting the law, we can make it sufficiently apparent that the consequence must follow, namely, that all vibrations are performed in equal times. Let A and B be two material objects.
trusted to each other's deliver in public: He is said to have delivered speeches composed of moral and political questions: his views are distinguished by a regard for virtue, and an aversion to all meanness and injustice. His politics were conciliatory; he was a friend of peace; he repeatedly exhorted the Greeks to concord. The orations of which he is the principal exponent are included the two states of peroxide of tin, of phosphorus hydroxide, &c. Professor Graham has been ever shown that the difference in the two oxides of tin is owing to one of them being a hydrate: and that the difference between the two phosphorated hydrogens is derived from the presence of the two phosphorus-compounds, which renders them one of spontaneous inflammability. The cyanic and fulminic acids are also classed as isomeric bodies, and it is admitted that cyanic acid is an oxide of cyanogen, but it is remarked by Professor Graham that we have no proof of the existence of cyanogen in fulminic acid, for though its elements are present in such proportions as to form it, they may be differently combined.

Should any real isomeric bodies be found, it is evident that a number of them must exist, since two or two equivalents of one, if there be only two elements, might take food for several days, and thus close his long and honourable career at ninety-eight years of age, b. c. 338. There are extant eight orations of Isocrates of the class called judicial, or hortatory (as they are called in Greek), and these orations form a considerable number, and of course it is probable that he did not attempt to determine a dispute as to the restitution of a deposit of money where there was an absence of all direct testimony as to the main fact. The orator puts the probabilities on each side in two opposite scales, and weighs them with consummate skill. Three of the orations of Isocrates—to Demonicus, to Nicocles, and the oration entitled Nicocles, belong to the Parmenitic or hortatory class, and the first two partake in some degree of the episodical style. Isocrates' Panatheniacus, is a panegyric of Athens, which he wrote in 1752, b. c. (Panath. c. 1.)

The style of Isocrates is singularly perspicuous, but highly polished, and somewhat diffuse. In Cicero's opinion it was the first ever to prose writing its due rhythm. The art of which they are the typical examples of he holds in dimunis, in some degree the effect of his writings, and is almost inconsistent with vigor and force. The oration to Demonicus is an almost uninterrupted series of antithesis. Isocrates, though he falls far below the great orator of Athens, is still a perfect master in the style which he has adopted, and has well merited the high encomium of Dionysius for the noble spirit and the rectitude of purpose which pervade his writings. This judicious critic has thus briefly summed up his contention between Lysias and Isocrates: "As to the charm of composition, Lysias is superior to Isocrates in the same kind that a naturally handsome person is to one made so by art: the composition of Lysias pleases naturally; that of Isocrates aims at a certain kind of interest, but Isocrates chooses his name of Isocrates, of which only twenty-five or twenty-eight at most were his; twenty-one of these have come down to us, together with a few epistles, probably not genuine. 'Isocrates, Opera,' Greek and Latin, were edited by the Abbé Augustin, 4to., Paris, 1789, (no date); by Dindale, London, 1752, 8vo.; and by Gillies, together with the Orations of Lysias, London, 1778, 4to. (Dionysius of Halicarnassus: Life of Isocrates, attributed to Plutarch; Cicerio, De Claror Oratoribus, c. 8; and Pliny, Natural History, 26th ch.).

I.TISON. [CARPROMIS: MURID.]

SOMERISIM, a term suggested by Berzelius (from P. C. No. 794. He kept up a correspondence with Philip, and two of his epitaphs to his countrymen and to his native Persia. In his 'Panegyric on Oration' (published about b. c. 378), which he wrote in the time of the Lacedaemonian association, he exhorted the Lacedaemonians and Athenians to vie with each other in a mutual elevation, and he recommended Isocrates' (after his death) influence towards his colonists. He addressed Philip of Macedon in a similar strain after his peace with Athens (b. c. 346), exhorting him to reconcile the states of Greece, and to unite their forces against Persia. He kept up a correspondence with Philip, and two of his epitaphs to that prince are still extant, as well as one which he wrote to the then youthfull Alexander, congratulating him on his proficiancy in his studies. But although the great king and his counsellors, in many cases, disapproved of the orator's discourse, he displayed considerable courage on several occasions, as when he showed his sympathy for Thamases, who had been the first to determine a dispute as to the restitution of a deposit of money where there was an absence of all direct testimony as to the main fact. The orator puts the probabilities on each side in two opposite scales, and weighs them with consummate skill. Three of the orations of Isocrates—to Demonicus, to Nicocles, and the oration entitled Nicocles, belong to the Parmenitic or hortatory class, and the first two partake in some degree of the episodical style. Isocrates' Panatheniacus, is a panegyric of Athens, which he wrote in 1752, b. c. (Panath. c. 1.)

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I.TISON. [CARPROMIS: MURID.]
ISOMETRICAL PERSPECTIVE. [PERSPECTIVE.]

ISOMORPHISM (from iso, equal, and morphi, form.)

In the year 1819 it was found by Mitscherlich that certain substances which have the property of assuming the same crystalline form may be substituted for each other in combination without altering the form of the crystal. Thus crystals which have the aspect and form of alum, a salt which is well known to contain sulphate of potash and sulphate of alumina, may be made with sulphate of potash and per sulphate of iron. Hence it is concluded that alumina and peroxide of iron are isomorphous; and it is also found that the primary form of alumine or corundum is a rhombic, which differs only a few degrees from that which is the primary form of peroxide of iron or specular iron ore.

The law of isomorphism, as announced by Mitscherlich in its utmost generality, is as follows: "The same number of atoms combined in the same way produce the same crystalline form, and the same crystalline form is independent of the chemical nature of the atoms, and is determined only by their number and relative position." This view has however been since abandoned by its author, and, as stated by Dr. Turner, his opinion now appears to be "that certain elements which are themselves isomorphous, when combined with the same metals, with the same salt, will furnish the same form; and he proceeds to state, in illustration of this doctrine, that similarly constituted salts of arsenic acid and phosphoric acid yield crystals of the same figure, because the acids, it is thought, are themselves isomorphous; and as the atomic constitution of these acids is similar, each containing the same number of atoms of the other ingredient, it is inferred that phosphorus is isomorphous with arsenic." Several distinct groups of isomorphous bodies have been described by Mitscherlich; from these we shall select the salts of phosphoric and arsenic acids as examples: the neutral phosphates and the biphosphates of soda have exactly the same form as the arsenate and binarseniate of soda; and, the phosphate and biphosphate of ammonia correspond with arsenate and binarseniate of ammonia, and the crystals with which they appear to measure alike, may really differ in some small quantity which the goniometer does not detect.

But although the doctrine of isomorphism, or absolute identity of form, cannot be supported, it has been said that the forms in each respective case belong to the same system of crystallization, and they have therefore been termed isomorphous by Mr. (now Professor) Miller, of Cambridge, in a paper on some artificial crystals read to the Cambridge Philosophical Society, in March, 1839; and every class of primary form can be indicated with certainty by the chemical composition of a crystallized body. A benefit will so far have been conferred on science by the theory of M. Mitscherlich. [Phil. Mag. and Annals. 1828.]

As connected with the subject of isomorphism, it will be proper to notice two other classes of bodies, which have been termed dimorphous and isodimorphous substances.

The case of dimorphism first ascertained was presented by carbonate of lime in the two incompatible crystalline forms of common calcareous spar and of arragonite. It was attempted to account for the difference by the fact that arragonite frequently contains a small portion of carbonate of strontia and of water; but it has since been found that these varying forms of carbonate of lime may be obtained artificially, and both in a pure state; thus when an alkaline carbonate is added to a cold solution of chloride of calcium, the carbonate of lime precipitated is analogous to calcareous spar; while the one thrown down from a hot solution of the chloride is similar to arragonite.

It was also soon afterwards discovered that sulphur crystallized from fusion differs essentially in its form from the natural crystals and those deposited from bisulphuret of carbon. So also the diamond and graphite, which are both pure carbon, crystallize in forms which are incompatible with each other.

A table of the dimorphous bodies at present known has been given by Professor Johnstone, in the Quarterly Review of the British Association.

The term isodimorphous is proposed by Professor Johnstone to express the fact that two substances known to be dimorphous, the carbonates of lime and lead, crystallize each in two forms, the analogous pairs of which are also isomorphous.

In the paper above alluded to, Professor Johnstone has also given a table of isodimorphous groups.

Salts of Lime

<table>
<thead>
<tr>
<th>Component</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesia</td>
<td>MgO</td>
</tr>
<tr>
<td>Protioxide of Iron</td>
<td>FeO'</td>
</tr>
<tr>
<td>Manganese</td>
<td>MnO'</td>
</tr>
<tr>
<td>Nickel</td>
<td>NiO</td>
</tr>
<tr>
<td>Zine</td>
<td>ZnO'</td>
</tr>
<tr>
<td>Cobalt</td>
<td>CoO'</td>
</tr>
<tr>
<td>Copper</td>
<td>CuO'</td>
</tr>
<tr>
<td>Lead (in plumbo-calcate)</td>
<td>PbO</td>
</tr>
</tbody>
</table>

Salts of Alumina

<table>
<thead>
<tr>
<th>Component</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peroxide of Iron</td>
<td>FeO'</td>
</tr>
<tr>
<td>Oxide of Chromium</td>
<td>CrO'</td>
</tr>
<tr>
<td>Selenic Acid</td>
<td>K2O.S</td>
</tr>
</tbody>
</table>
Organization.

MM. Victor Audouin and Milne Edwards have given some most interesting particulars of the organization of the Isopods, the Ligia. (Ligia squamata, Latreille, Systema Naturae, Augst., 1827.) It appears from their observations that the heart has the form of a long vessel extended above the dorsal surface of the intestine. Its anterior extremity gives off three arteries, as in the Decapods. The lateral branchies also have a blood vessel from the heart towards the face. At the edge of the two first articulations of the abdomen, or tail, this organ receives, both right and left, small canals (the branchio-cardiac vessels) which seem to come from the branchies. According to the demonstrations of these zoologists, in the case of the Ligia, it would appear that the nervous system is less complete than in the Macrurus Decapods; and that the blood drawn from the heart to the different parts of the body passes into lacunae, which then communicate with them at the lower surface of the body, and which have a free communication with the different vessels of the branchies. The blood, after having traversed the respiratory apparatus, returns to the heart in traversing the branchio-cardiac vessels. This disposition would establish the passage from the circulating system of the Decapods crustaceans to that of the Branchiopoda. According to Cuvier, the two anomalous chords composing the mesal part of the nervous system of the Ommatia (and probably also of the Ligia) and even of the Amphipoda are not entirely approximated, and may be well distinguished throughout their length. There are nine ganglia, without counting the brain; but the two first and the two last are so approximated that they may be reduced to seven. The second and the sixth following furnish the seven pairs of feet; the four anterior feet, although analogous in the order of succession of the parts to the four last, are really feet, properly so called. The segments which immediately succeed, or those that form the tail, are free from the others in the ligia. These segments may be considered as simple divisions of a single segment, represented by that ganglion; and we accordingly see that the number of these posterior segments is five.

The following is the arrangement of M. Latreille:

1. Epicarides. (Latreille.)

These are parasitical Isopods, which, according to M. Latreille, are without either eyes or antennae; the males however have eyes, though the females are blind. The body is flat, very small and oblong in the males; but much larger in the females, taking, in these cases, the form of an oval, which is narrowed and a little curved posteriorly, hollow below, with a thoracic border, divided on each side into five membranous lobes. On this border the feelers, which are very small and not used for walking or swimming, are situated. The under part of the tail is furnished with five pairs of small, dilated imbricated leaflets, answering to as many segments, and disposed in two longitudinal rows; but the posterior extremity is deprived of appendages. The mouth presents distinctly only two membranous leaflets applied one upon the other, of the same consistency, and quadriateral. The lower concavity, forming a sort of flat basket, is filled with eggs. Near the place of their issue is constantly found an individual, which is presumed to be the male; but the Latreille adds, that the external smallness of its size seems to forbid the possibility of copulation. According to M. Desmarest, this individual is furnished with two eyes: its body is straight and nearly linear. One subgenus only belongs to this section.

Bopyrus. (Latreille.)

The most common species is Bopyrus Cranugorum. Those who are in the habit of eating prawns will probably have observed a tumour occasionally presenting itself under the carapace on one of the sides, which is bulged out. On lifting this part of the shell, the parasite will, in such cases, be discovered immediately under it and upon the branchies. We have frequently detected the Bopyrus, but on whatever species of prawn it has been found, we have never remarked that the animal to which it adhered was more meagre than its fellows, though this perhaps may have arisen from the prawn not having been long subject to the visitation of the parasite. But there is another reason why the prawn should not suffer much from the adhesion of the parasite. The author of 'Histoire des Insectes' informs us that he has lately found three specimens of Bopyrus (females) with their backs turned to the branchies of the prawns; and he is of opinion that they and other crustaceous parasites which adhere to the anterior parts of fishes and crustaceans fix themselves there for the sake of the currents (produced by the branchies) in respiration), which bring with them the animalcula on which the parasites feed.

Bopyrus is found on Paltemon serratus and Paltemon squilla, but most frequently on the former. (See the paragraphs at the end of the account of Serolis.)

\[\text{Image of Bopyrus Cranugorum.}\]

\[\text{Image: a. The upper side: b. the animal seen in profile: c. the under side: d. one of the feet, much magnified (female): e. small organs of the anus in the male, upper side: f. the same, lower side, g. cranium of a prawn deformed on the left side by the presence of Bopyrus.}\]

M. Risso has described another species, under the female of which he states that he found eight or nine hundred living young ones. See further, Desmarest, 'Considerations sur la crustacees,' p. 272.
very apparent antenna; these are setaceous, and nearly always terminated by a pluriarticulate stem. These crustaceans have eyes, a mouth of the ordinary formation (La
treille refers to the generalities of the Malacostraca with
sexual eyes), vesicular branchiae, disposed longitudinally in
pairs, a tail consisting of from four to six segments, with a
fin on each side, and the anterior feet most frequently ter-
minated by a strong but small nail or hook. These Isopods
are all parasitic according to Latreille; but Serolis appears
not to be a parasite. Sometimes the eyes are mounded up
on tubercles at the summit of the head. The tail is composed
of only four segments.

Sorolis. (Leach.)
One species only known (Cymothoa paradoxa of Fabri-
cius). Antennae placed on two lines, and terminated by a
pluriarticulate stem. Under the three first segments of the
tail there are between the ordinary appendage three others,
which are transverse and terminated posteriorly in a point.
M. Desmarest describes the animal thus:—superior an-
tenne formed of four joints, larger than the three first of
the inferior antenna; the last joint composed of many others,
and smaller. Inferior antennae with five joints, the two
first small; the third and fourth (principally this last)
elongated; the fifth composed of many others, smaller.
Second pair of feet having the penultimate joint enlarged
and the nail or claw much elongated; the sixth pair ambu-
labatory, rather spiny and having the nail slightly curved.
Anterior appendages of the belly, or branchial lamina,
formed of two equal parts, which are foliaceous, rounded at
their extremity, furnished with hairs at their base, placed
upon a common peduncle; the two posterior and lateral
appendages are small and narrow, especially the interior one,
which hardly projects.

This is a very interesting animal, and has been considered
to offer some resemblance at first sight to the extinct form
of the Trilobites. M. Desmarest however remarks that it
requires but a slight examination to prove that there is not
the slightest resemblance between them.

Dr. Buckland, on the other hand, is of opinion that
Serolis affords the nearest approach among living animals
to the Trilobites. To Trilobites as the most striking
difference, he observes, between this animal and the Trilo-
bites consists in there being a fully developed series of
crustaceous legs and antennae in Serolis, whilst no traces of
either of those organs have yet been discovered in connexion
with any Trilobite. M. Brougnart, he adds, explains the
absence of these organs by conceiving that the Trilobites
hold precisely that place in the class Crustaceae (Gymno-
branchia) in which the antenna becomes very small or
altogether null and that the legs, being transformed into
complets close and perishable paddles (pattes), bearing branchia, or
filamentous organs for breathing in water, were incapable of
preservation.

It is however by no means clear that we have in Serolis
the nearest approach to those extinct crustaceans so interest-
ing to the geologist and palæontologist. Do we not
find a much nearer approximation in Bogypus? Of this
opinion is Mr. W. S. MacLeay, the author above quoted,
who has perhaps studied the Insectibrata with a view to
generalization more deeply than any living zoologist.
The Trilobites exhibit no vestige of antenna: Serolis has an-
tenne; Bogypus has none; nor are we to forget the
ordinary legs of the latter. In accordance with this
view the extinct of Bogypus would represent a sort of Bu-
musius (Murchison, Silurian System), and the female an
Asaphus.

If this supposition be well founded, those forms
among the Trilobites which systematists have separated
specifically on the ground of the absence or presence of
eyes, may be mere modifications arising from sexual differ-
ce; for nature makes nothing in vain; and the females
of Bogypus and Cymothoe have no eyes, because they do
not require them, whilst the males do. Thus the echinocel-
inchae, two or three pairs of branchiae, and leptomeres, four
eyes; but in the female, when fit for reproduction, becomes a fixture and is
blind. So the Cirripedes in their youth are free and have
eyes; in their adult state, when they are sessile, they lose
organs which would be comparatively useless.

With regard to the observation of M. Brougnart, the soft-
ness of the texture of the Nerides of MacLeay, and the per-
fusion of the impression of Nereites Cambrensis, March. (pl.
27, fig. 1, of Mr. Murchison's work 'On the Silurian System
of Rocks'), make it very remarkable, as Mr. MacLeay there
observes, that if articulated feet existed in the Trilobites,
some vestiges of them, even although membraneous,
should not come down to us more perfect than those
figured by Goldfuss. [Trilobites.]

Sorolis Fabrilini. a, back; b, under surface, showing the union of crustacean
legs with the membraneous branchia; c, magnified view of branchia.

Locality of the genus.—Tierra del Fuego, Straits of
Magalhaens (Banka). Senegal (Dufresne). Captain Phillip
Parker King, R.N., collected many specimens on the east
coast of Patagonia, and also at Port Famine, in the Straits,
where Capt. King saw the beach covered with dead speci-
mens. He also observed them at the bottom among the
seaweed. They moved slowly and
gradually, unlike a shrimp. He never saw them swimming
near the surface: their legs seemed adapted for swimming and
crawling on the bottom.

Cymothoe. (Fabr.)

Antenna nearly equal in length; eyes but little apparent;
last segment of the tail squared, and the two pieces termi-
inating the lateral fins linear, equal, and styliform.

Ichthyophilus (Larz.; Nerocilia, Livenea, Leach).

Antennae of equal length, and eyes not very visible; last
segment of the body nearly triangular, with two pairs ter-
minalating the lateral fins, in form of leaflets or blades:
the exterior of these is greatest in Nerocilia, and of the same
size as the others in Livenea.

M. Latreille observes that the four following subgenera
the superior antennae are manifestly shorter than the in-
terior.

Many, as well as the Cymothoe, have all the feet ter-
minalated by a powerful and strongly arched nail (onglet); the
last eight are not spiny; the eyes are always distinct
and convex. These, in the method of Dr. Leach, form three
genera, but M. Latreille is of opinion that they may be
united under one subgenus, namely,

Canolinia (Leach.; Aniocra, Olecrana, of the same).

In those Canolinia designated by Dr. Leach as Olecrine
the blades of the fins are narrow and armed with points.
In those named by the same zoologist Aniocra the external
blade of the fins is longer than the internal one; the inverse
of which is the case with the Canolinia, in which, besides,
the eyes are but very little granulated, while they are very
sensibly granulated in Aniocra.

M. Latreille remarks that in the three following sub-
genera the second, third, and fourth feet only are termi-
nated by a very strongly curved nail (onglet), and the eight last
are spiny. The eyes ordinarily have but little convexity,
and are large and converging anteriorly.
The Isopods composing this section have four very distinct antennae, which are either setaceous or conical; and, with the exception of Antithura, they are always terminated by a stem divided into many small joints, and short. The lower antenna, which are always the longest, are inserted under the lower part of the first joint, which is large and thick. The mouth has the usual form. The branchiae are vesicular or soft, naked, and disposed longitudinally in pairs. The tail has only two complete and moveable segments, but has often impressed transverse lines upon it, indicating the vestiges of other segments. On each side of its posterior extremity is a fin terminated by two leaflets, the lower of which is moveable, while the upper one is formed by an internal prolongation of the common support. The branchial appendages are curved internally; the internal side of the first is accompanied in the males by a small linear and elongated piece. The anterior part of the head, situated below the antennae, is triangular, and in the form of a reversed heart. Some have an oval or oblong body, contracting ordinarily into the form of a bow. The antennae are terminated by a pluriarticulate joint, and the lower ones at least are sensibly longer than the head. The lateral and posterior fins are formed of a peduncle and two blades, composing, together with the last segment, a fan-like fin. In these the impressed and transverse lines of the anterior segment of the tail, always shorter than its successor, or the last, do not reach the lateral borders. The first joint of the superior antenna is in the shape of a triangular battledore (paletto). The head seen from above forms a transversal square. The leaflets of the fins are very much flattened, and the intermediate piece, or last segment, is enlarged and rounded laterally.

Leaflets of the fins very large, the upper of which is shortest, separated from the other to form a border to the last segment.

Sphacroma. (Latr.)

Leaflets of moderate size, equal, and applied one over the other.

Sphieroma dentata.

In others the impressed lines, or transverse sutures of the anterior segment of the tail, attain the lateral border and cut it. The first joint of the superior antenna forms an elongated palette, which is square or linear. The leaflets of the fins are ordinarily narrower and thicker than in the preceding: the exterior sometimes (as in Cymodocea) envelops the other: their point of junction resembles a knot or joint. Sometimes the sixth segment of the body is sensibly longer than the preceding segments and the succeeding one. One of the leaflets of the fins only is projecting.

Nusa (Campaecopia, Leach).

Sometimes the sixth segment of the body is of the length of the preceding segments, and of the succeeding one, as in

Limnoria (Antloena) Caperius.

Ega. (Leach.)

Two first joints of the superior antennae very large and compressed.

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The only living species known is Linnorina teresbrans, which, although only two lines in length, is nevertheless highly injurious in consequence of its multiplication and its habits. The rapidity with which this crustacean pierces the timber of ships makes its attacks not only mischievous but alarming. It rolls itself up like a wood-louse when it is seized; and is a native of the European Seas.

3. Syphonidae. (Latr.)

The Isopods composing this section have four very distinct antennae, which are either setaceous or conical; and, with the exception of Antithura, they are always terminated by a stem divided into many small joints, and short. The lower antennae, which are always the longest, are inserted under the lower part of the first joint, which is large and thick. The mouth has the usual form. The branchiae are vesicular or soft, naked, and disposed longitudinally in pairs. The tail has only two complete and moveable segments, but has often impressed transverse lines upon it, indicating the vestiges of other segments. On each side of its posterior extremity is a fin terminated by two leaflets, the lower of which is moveable, while the upper one is formed by an internal prolongation of the common support. The branchial appendages are curved internally; the internal side of the first is accompanied in the males by a small linear and elongated piece. The anterior part of the head, situated below the antennae, is triangular, and in the form of a reversed heart. Some have an oval or oblong body, contracting ordinarily into the form of a bow. The antennae are terminated by a pluriarticulate joint, and the lower ones at least are sensibly longer than the head. The lateral and posterior fins are formed of a peduncle and two blades, composing, together with the last segment, a fan-like fin. In these the impressed and transverse lines of the anterior segment of the tail, always shorter than its successor, or the last, do not reach the lateral borders. The first joint of the superior antenna is in the shape of a triangular battledore (paletto). The head seen from above forms a transversal square. The leaflets of the fins are very much flattened, and the intermediate piece, or last segment, is enlarged and rounded laterally.

Leaflets of the fins very large, the upper of which is shortest, separated from the other to form a border to the last segment.

Sphacroma. (Latr.)

Leaflets of moderate size, equal, and applied one over the other.

Sphieroma dentata.

In others the impressed lines, or transverse sutures of the anterior segment of the tail, attain the lateral border and cut it. The first joint of the superior antenna forms an elongated palette, which is square or linear. The leaflets of the fins are ordinarily narrower and thicker than in the preceding: the exterior sometimes (as in Cymodocea) envelops the other: their point of junction resembles a knot or joint. Sometimes the sixth segment of the body is sensibly longer than the preceding segments and the succeeding one. One of the leaflets of the fins only is projecting.

Nusa (Campaecopia, Leach).

Sometimes the sixth segment of the body is of the length of the preceding segments, and of the succeeding one, as in

Linmorina (Antloena) Caperius.

Ega. (Leach.)

Two first joints of the superior antennae very large and compressed.
the leaflets of the fins only is projecting, the other leaning against the posterior border of the last segment.

Cymodocea Lamarckii.

Dynamene.

Resembling Cymodocea in the projection and direction of the leaflets of the fins, but having the sixth segment prolonged backwards, and the last with a simple slit only, there being no blade. Others again, as Anthura, have a vermiciform body, and the antennæ, hardly so long as the head, consisting of four joints. The leaflets of the posterior fins form by their disposition and approximation a sort of capsule. The anterior feet are terminated by a monodactyl claw.

Anthura Gracile, magnified.

4. Idotea. (Leach.)

This section consists of Isopods whose antennæ are four in number, but upon the same horizontal and transverse line; the lateral ones are terminated by a stem ending in a point, gradually decreasing and pluriarticulate; the intermediate antennæ are short, filiform, or a little the largest towards the end, and four-jointed, none of the joints being divided. The conformation of the mouth is the same as in the preceding sections. The branches are in the form of bladders, white in the greater part, susceptible of being blown up, capable of aiding in swimming, and covered by two blades or valves of the last segment, adhering laterally to its borders, longitudinal, biarticulate, and opening in the middle by a straight line, like a folding door. The tail is formed of three segments, the last of which is much the largest, without appendages at the end or lateral fins. These crustaceans are all marine.

Idotea. (Fabr.)

All the feet strongly unguiculated and identical; the body oval or simply oblong, and the lateral antennæ shorter than the half of the body.

Idotea triquetrata.

Stenosoma. (Leach.)

Differing from Idotea in the linear form of the body and the length of the antenna, which surpasses the half of that of the body.

Stenosoma linear, natural size. a, lamina of the under part of the abdomen.

Arcturus. (Latr.)

Very remarkable for the form of the second and third feet, which are directed forwards, and terminate by a long bearded joint, unarmed or feebly unguiculated; the anterior feet are applied upon the mouth and unguiculated; the six last are strong, ambulatory, thrown backwards, and bilobated at their extremity. In the length of the antenna and form of the body Arcturus approaches Stenosoma. M. Latreille (1829) says that he never saw but one species. Arcturus tuberculatus, brought home from the North Seas by one of the last English expeditions to the North Pole.

5. Asellota. (Latr.)

The fifth section consists of Isopods with four very apparent antennæ which are disposed on two lines, and are setaceous and terminated by a pluriarticulate stem. There are two mandibles, four jaws, ordinarily covered by a species of lip formed by the first jaw-feet. The branches are vesicular, disposed in pairs, and covered by two longitudinal and biarticulate but free leaflets. The tail is formed of a single segment, without lateral fins, but with two bifid needle-like processes, or two very short appendages in the form of tubercles, at the middle of its posterior border. There are other lamellar appendages situated on its inferior base, more numerous in the males than in the females, and these serve to distinguish the sexes.

Asellus. (Geoffry.)

Two bifid needle-like processes at the posterior extremity of the body; eyes distant; superior antennæ at least as long as the peduncle of the inferior antennæ. Hooks at the end of the feet entire
This is very abundant in fresh stagnant waters, as in the pools about Paris. It moves slowly when not terrified. In the spring it comes forth from the mud, in which it has passed the winter. The male, which is much larger than the female, carries her about for a space of eight days, holding her by means of his fourth pair of feet. When he quits her, she is pregnant with a great number of eggs, enclosed in a membranous sac placed under her breast, and opening by a longitudinal slit to give passage to the young.

Oniscus. (Latreille.)

These, the Junice of Dr. Leach, differ from the Axelli in the approximation of their eyes, in having their superior antennae shorter than the peduncle of the inferior ones, and in the hooks of the fasi, which are not bispin. M. Latreille remarks that only a single species, Jorda albofrons, Leach, has been found, and that it is very common on the English coast, under stones and among the sea-weeds and Ulves.

Porcellio. (Latreille.)

Distinguished from the true wood-lice by the number of joints of their lateral antennae, which are only seven. In other respects Porcellio resembles Oniscus.

Armadillo. (Latreille.)

The posterior appendages of the body are not projecting; the last segment is triangular. A small blade, in form of a reversed triangle, or more large and truncated at the end, formed by the last joint of the lateral appendages, fills up on each side the void between the segment and the preceding. Lateral antennae with only seven joints. The upper subcaudal scales are pierced with a row of small holes.

Such is the arrangement of M. Latreille. Lamark divided the Isopoda into two great sections: the first consisting of those Isopods which have the branchiae situated under the tail, and comprising two subdivisions; the second composed of those which have their branchiae placed under the anterior part of the abdomen, between the feet.

Under the first he arranged the genera Armadillo, Oniscus, etc.
**ISO 56 ISO**

**CUIS, Philocena, Ligna, Anellus, Idotea, Sphaeroma, Cymothoa, Bopyrus, Typhnis, Ancus, Praniza, Aposeides, Ione.**

Under the second he included the genera Leptodora, Cappella, and Cyamus.

M. Desmarest divided the Isopoda into two great sections, with many subdivisions.

His first section, which he makes equivalent to the Phylitibranchiate Isopoda of Latreille, consists of the genera Typhnis, Ancus, including Gnathia of Leach, Praniza, Edusc, and Ione.

His second section, which he makes equivalent to the Pterygobranches of Latreille, comprises the genera Idotea, Stenosaoma, Anthura, Serosis, Campeocopa, Nesa, Cilicea, Cymodoea, Dendranes, Zazura, Sphaeroma, Euryzicea, Necteia, Ectanea, Coniera, Rocinella, Ega, Anosolea, Verrucaria, Limnoria, Aneulius, Janira, Jera, Ligia, Philocena, Oncusus, Percellio, Aramidio, and Bopyrus.

M. Milne Edwards (edition of Lamarck, 1839) states, in a note to that part of Lamarck’s definition of an Isoped crustacean, ‘mandibules sans palpes,’ than Lamark, Latreille, and most authors are in error when they assign this character to the Isopoda, for in a great number of these crustaceans the mandibles are provided with a paliform stem, entirely resembling that which may be seen in the greater part of the Amphipoda.

He further remarks that the respiratory lamelae situated under the abdomen are hardly ever branched, properly so called, but only one of the branches of the false feet become in the posterior and vasculare, in as many of the appendages of the thoracic feet in the Amphipoda. The female of Ione, he observes, exhibits an exception, for she carries ramose branches on each side of the abdomen.

M. Milne Edwards, in his notes, further states that those crustaceans whose respiratory appendages are placed under the thorax (which Lamark calls abdomen) ought not to remain in the order of Isopoda, but belong to the Lamodiopoda of M. Latreille. The egg-pouch he describes as being formed by the flabelliform appendages which have become foliaceous, and are raised against the sternum.

The same acute zoologist (loc. cit.) says that the Isopoda, properly so called, are Edriotphalme crustaceans, whose abdomen is never rudimentary, and carries below five pair of false thoracic feet, having all nearly the same form, and the same functions. The appendages of the penultimate ring (or the false feet of the sixth pair) have a form and use different from those of the preceding. The thorax, composed in general of seven rings, but sometimes having only five, carries always seven pairs of feet, which are often furnished with a foliaceous pect, serving to protect the eggs and young, but they hardly ever carry a vesicular appendage proper for respiration, as in the Amphipoda and Lamodiopoda. Finally, the conformation of their buccal apparatus varies, and the anterior part of those animals are in errant the moment when they assign to them as a character the possession of mandibles deprived of paliform appendages.

M. Milne Edwards is of opinion that the Isopoda form three natural families, the Cymothoceans, the Clytothoceans, and the Clyptodiscus, and he thus distinguishes them.

A. Jaw-feet operculiform, and deprived of a paliform stem, only showing the vestiges of it.

• Thoricite foot amebulatory; last segment of the abdomen smaller than the preceding segments; internal antennae rudimentary.

These form the family of Clytothoceans.

• Thoricite feet anchor-like (aneruses), last segment of the abdomen always much larger than the preceding segments; internal antennae in general well developed.

These form the family of Clytophoida.

AA. Jaw-feet paliform. Last abdominal ring much more developed than the preceding ones; all or nearly all the feet amebulatory.

These form the family of Idoteidons.

In this classification, says the author, the family of the Clytopholidons has the same limits as in the method adopted by Lamark, and comprises the Territorial Isopoda.

The family of Cymothochida is composed of the Para-
the square of the cosine of the latitude, and with some modifications this law is even generally admitted. At the level of the sea the value of the mean annual temperature is expressed by \( M + E \cos \alpha \); where \( L \) is the latitude of the place, \( M \) is the mean temperature on the parallel of \( 45^\circ \), and \( M + E \) is that at the equator; and Professor Playfair has from this expression deduced a formula for determining the mean temperatures which includes the season of the year and the elevation of the place above the sea: he admits however that it agrees only with the Atlantic Ocean and the western part of the Old Continent. (Outlines of Nat. Phil., "Pneumatics."

In the northern hemisphere, as we proceed eastward and westward from the meridians of Greenwich or Paris, it is found that the mean temperature of any parallel becomes continually less, and the severity of the winter greater than in this part of the world; the difference appears to attain a maximum at the eastern extremity of Asia, and one still higher in the central parts of North America. From a comparison of observations Humboldt found that between the parallels of \( 28^\circ \) \( 29^\circ \) N. and \( 41^\circ \) \( 53^\circ \) N. the difference between the latitudes of a place in Europe and a place in North America, having the same mean temperature, is about 7 degrees; and that the difference between the mean temperatures of two places having the same latitude in Europe and North America is \( 4^\circ \) of Fahrenheit's thermometer.

In order to ascertain with the utmost possible precision the mean temperature of any place from the tables there kept, Humboldt divided the sum of all the temperatures observed in each day at intervals of one hour by the number of observations; and the sum of all these mean daily temperatures being divided by 365, gave the mean annual temperature. And in determining the series of points for his lines of equal temperature, when there existed no observations on which he could depend, he interpolated the temperature and geophysical position between the values of those elements at two or more places where they were well known.

The period during which a traveller remains in any one place will seldom allow him to make a sufficient number of observations for determining its mean annual temperature by the process above mentioned; and therefore it may be useful to know that, according to Humboldt, the mean temperatures for the months of October and April are very nearly equal to the annual mean temperature; also that the half sum of the temperatures at sun-rise and at 2 p.m. is nearly equal to the mean temperature for the day. It may be proper to remark also that travellers, in making observations relating to temperature, should be careful to place their thermometers at some distance above the surface of the ground, and in situations where they may be unaffected by the reflection or radiation of heat from buildings or from terrestrial particles in the atmosphere. The very high temperatures which have been occasionally observed in sandy deserts are probably owing in part to the latter circumstance.

The following diagram represents an orthographical projection, on the plane of the equator, of the principal meridians and parallels of latitude in the northern hemisphere of the earth; and the strongly marked curves represent the nine isothermal lines whose forms have been determined by Humboldt. Their distances from one another are such as correspond on the earth to a change of mean annual temperature equal to \( 2^\circ \) degrees of the centigrade thermometer (\( 4^\circ \) of Fahrenheit), and the most northern curve is that on which the mean temperature is expressed by zero on the former, or \( 2^\circ \) on the latter scale. The number on each curve in the diagram expresses, according to Fahrenheit's thermometer, the mean annual temperature, at the level of the sea, of all the places through which the curve passes. The centre \( P \) represents the pole of the earth, and the longitudes of the meridian lines are numbered eastward and westward from the meridian of Greenwich.

The isothermal line of \( 32^\circ \) passes about 4 degrees southward of Nain, a Moravian settlement on the coast of Labrador; and, continuing eastward through a point about 1 degree north of Unceka in Sweden, it there makes a remarkable inflexion. After ascending as high as North Cape in Lapland it abruptly returns southward, and attains its lowest limit in the eastern parts of Asia. Proceeding westward from Labrador recent observations have shown that the curve descends towards the south and crosses the lower extremity of Hudson's Bay, from whence it again tends northwards to the Great Slave Lake. The positions of the other curves have been influenced in some measure by that which has been just mentioned. In their progress from the western coast of Europe to the eastern coast of America they incline towards the terrestrial equator, yet so as to make the southern curves approach very near to parallelism with that great circle of the earth. Within the territory of the United States they assume a form which is convex.

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to the equator, and farther west they appear to re-ascend towards the north. At about 10° eastward of the meridian of Greenwich the curves have their convexities turned northward; and farther eastward they descend towards the equator, but the want of accurate observations in Asia renders their course in that part of the world rather uncertain.

The isothermal line of 54° 3' alone has been traced nearly round the earth; commencing at the mouth of the Amazon and passing through the South Westerly Current; it passes near the city of Washington with its convexity towards the south; and after crossing the Atlantic it runs through Bordeaux, from whence it continues to the city of Pekin, at which place it again becomes convex towards the equator.

It follows from the last volume of the ‘Memoirs’ of the Royal Asoc. Soc., that the isothermal curve of 17°, which appears to pass through Spitzbergen in lat. 76° N., and through Melville Island in lat. 69° S.,

But in every country the mean temperature varies with the height of the place above the level of the sea; and Humboldt, from observations made as well on the Cordilleras as in Europe, having determined that at every 100 metres of elevation (or 328 English feet) the mean temperature of the air is diminished by a quantity equal to that diminution which is consequent on an augmentation of latitude equal to one degree, calculated a table of the corrections which should be made in the curvature of the isothermal lines at the level of the sea, in order to obtain the forms which appertain to points at any given elevation.

According to Playfair the diminution of heat on ascending in the atmosphere is, near the surface of the earth, at the rate of one 270 feet per 1°. Mr. Atkinson (Mem. of the Royal Asoc. Soc., vol. ii.) found, by applying the method of least squares to equations formed from the data furnished by that philosopher, that the highest degree of the atmosphere, or the square of the cosine, and then as cos. of the latitude, that the mean temperature there is at least equal to 84° 8'. It is right to observe however, that Humboldt, in a paper published in the ‘Annales de Chimie’ for Sept., 1846, objects to the conclusions of Mr. Atkinson, and adds inductions from determinations of Sir D. Brewster, in the sixth volume of the ‘Edinburgh Journal of Science’, by a reduction of observations made at Ceylon, and assuming the temperature to vary according to the law of 84° 21' 57" for the mean temperature of the earth.

An inspection of the isothermal curves, and particularly that of 33° in the above diagram, will sufficiently show that the mean temperature of the terrestrial pole cannot be obtained from any simple formula in which the variations are represented by the geographical latitudes alone. And in fact Captain Scoresby, using the formula of Mayer, and subtracting from the result a correction which he concluded to be due to the frigorous influence of the ice, made the mean temperature at the pole equal to 10° ('Fahr.). From the observations of Captain (Sir Edward) Parry, it appears that such temperature there must be lower than 3° below the zero of the scale.

Sir D. Brewster has been led, from the form of the curves, to adopt the hypothesis of two parallel surfaces of which the mean temperature is given, for the mean temperature at any place, the formula

\[ D = \sin \left( \frac{D}{\sin 30°} \right) \]

where D is the distance of the place from the nearest pole.

By comparing the mean temperatures of Van Diemen’s Land with that at the Cape of Good Hope, the same philosopher concludes that in the Antarctic regions there are two points of maximum cold, whose situations correspond to those in the northern hemisphere. But it is evident that observations made at high latitudes may be multiplied in both hemispheres before the data can be considered sufficient for the determination of the isothermal equation or poles; or to serve as a foundation for the construction of formulae for temperature and climate, with sufficient confidence for the purposes here intended.

In the ‘Edinburgh Phil. Trans.,’ 1820, Brewster has expressed the interesting idea that some connexion exists between the isothermal and the magnetic poles of the earth; in which case the revolutions of these last may produce the convolutions in the isotherms with which we have been unable to reconcile the little discrepancy between the mean annual temperatures of places similarly situated in the two hemispheres. Near the equator, as might be expected, the mean temperatures in both are the same; those of the Isle of France and of Jamaica are 80°; in the temperate latitudes of the northern pole of the Earth, and thus a considerable degree of cold is produced at particular places. But the observations which have, within a few years, been made upon the temperature of the southern region, indicate very little difference between the mean annual temperatures of places similarly situated in the two hemispheres. Near the equator, as might be expected, the mean temperatures in both are the same; those of the Isle of France and of Jamaica are 80°; in the temperate latitudes of the northern pole of the Earth, and thus a considerable degree of cold is produced at particular places. But the observations which have, within a few years, been made upon the temperature of the southern region, indicate very little difference between the mean annual temperatures of places similarly situated in the two hemispheres.
first noticed in the time of Louis IV. Outremer (a.D. 936-954). In the twelfth century it was under the dominion of lords of its own, to whom is ascribed the erection of its castle, of which only a large tower remains. In a.D. 1220 it was taken by Philippe II. Auguste from the English, and remained in possession of the crusaders only a generation of the sixteenth century it came into the hands of the League, but a.D. 1559 the inhabitants drove them out. The town lost many inhabitants by the revolution of the era.

Issoudon is in a fertile tract, and is partly on the slope of a hill. The streets are broad and the houses built with tolerable regularity. There are four churches, two hospitals, a high-school, and a theatre. The population was, in 1831, 11,664; in 1851, 14,440, but the year before the revolution of 1848 about 18,000, and its decrease is mainly of Selavonian race, and speak a dialect of the Slavonian language, like the Dalmatians and Croatians. The country produces oil, good wine, fruits, honey, corn, and silk; it is rich in salt and fisheries, and has abundant quarries of freestone and marble. It has some tanneries, and some manufactories, but in general the industry of the inhabitants is in a backward state. An offshoot of the Julian Alps, running to the eastward of Trieste, extends across to the shores of the Gulf of Fiume, and sends out its arms into the body of the peninsula of Istria. On the southern slopes of this range several streams rise, which water the valleys of Istria.

ITALIAN ARCHITECTURE. To what was briefly alluded in the subject of the article CIVIL ARCHITECTURE, some further account is now added, which may be introduced by observing, that instead of comprising buildings of every style and class to be met with in Italy, the term 'Italian' is generally restricted to denote that generic style formed by the revival of the Roman orders and the imitation of them, and other features derived from works of the same age, to buildings of every kind, domestic as well as public. Without such limitation, the term would apply to buildings having the general character of buildings in Rome, and the cure of chronic infammations of many internal organs, and especially of those of the joints and of the spine.

ISSUE [Law. [Pleading]

ISTIMAN GAMES. These were one of the four great national festivals of Greece, the others being the Olympian, Pythian, and Nemean. They were celebrated under the presidency of the Corinthians, near Corinth, on the mountains, and the seats of the games, and were celebrated at intervals of four years, corresponding with the recurrence of the other festivals above-mentioned, so that each year had its solemnity. The Isthmian games were first established in honour of Melicertes, the son of Ioo (Proc. 1, 44); but were reorganized by Theseus, in honour of Neptune, the presiding deity of the Isthmus. The crowns bestowed on victors were of pine leaves. As all these games were similar in their object and ceremonies, it will be enough to say anything on the article on the principal of them, the OLYMPIAN GAMES.

ISTIO'PHORI, a family of Bats. [Cheiroptera, vol. vii., p. 227.

ISTI'RIUS. This genus of Saurians according to M.D. Daudin and Bibron, includes the Hydrosaurus (Hydrosaurus Ambosibini) of Kaup. [IGUANIDE]

ISTRIA, the ancient Istia, a peninsula on the north-east coast of the Adriatic Sea, between the gulf of Trieste and that of Quarnaro, or Fiume, is about 50 miles long from north to south, and 20 miles wide at its broadest part, ending in a point near Pola. Till the end of the last century Istria belonged to Venice, except the north-western part of it, or the territory of Trieste, which was in the possession of Austria, and the eastern frontage the column of the Roman Emperor Tiberius. In 1779 the whole of it was given up to the French to Austria, together with the other territories of Venice. Istria now forms a circle of the government of Trieste, in the kingdom of Illyria. [AUSTRIA; ILLYRIA.] Its principal towns are Capo d'Istria, a bishop's see, with about 8000 inhabitants; Pirano, a place of considerable maritime trade, with fisheries, and about 6000 inhabitants; Rover, with 8000 inhabitants; and Pola, a decayed town, about 3000 inhabitants. But Pola is remarkable for its fine remains of antiquity, such as an amphitheatre, several temples, one of which is dedicated to Augustus, a triumphal arch called Porta Aurea, &c. The antiquities of Pola have been described by Sylvain F. Germaine Pictorques de l'Istria et Dalmatine, with fine plates, fol., Paris, 1802. The population of Istria under the Venetian republic was 92,000 in 1789. The inhabitants of the towns and coasts are chiefly Italians, who speak a dialect of the Venetian, and are of mixed race, partly from the vicinity of Slavonian race, and speak a dialect of the Slavonian language, like the Dalmatians and Croatians. The country produces oil, good wine, fruits, honey, corn, and silk; it is rich in salt and fisheries, and has abundant quarries of freestone and marble. It has some tanneries, and some manufactories, but in general the industry of the inhabitants is in a backward state. An offshoot of the Julian Alps, running to the eastward of Trieste, extends across to the shores of the Gulf of Fiume, and sends out its arms into the body of the peninsula of Istria. On the southern slopes of this range several streams rise, which water the valleys of Istria.
one order was placed above another, two straggling rows of low insulated pillars—for low they must be in comparison with the entire height—would have produced an appearance positively disagreeable, and instead of at all ornamenting a building, it has encumbered it with what would have resembled stages of scaffolding. Should any one question this, he has merely to fancy all the columns brought forward two or three feet, in the front of Whitehall chapel, and then judge whether it would be at all improved by two such columns standing there.

For a somewhat similar reason, either pilasters were substituted for engaged columns, or the entablature was made to break over every column,—as in the building just mentioned, which may be referred to as a tolerably characteristic example of the Italian style in building. But that class, without those capricious abnormalities which so frequently offend us even in the buildings of Palladio himself, although he has the reputation of being comparatively chaste in his designs. For if, instead of being thus broken, the entablature were continued from column to column in each story, overhanging the face of the wall, it would produce the appearance of heaviness as well as weakness.

One defect attending this practice of giving a separate order to each story is, that the columns become insignificant, both in proportion to the entire front and to the windows between them, more especially when the columns are further shortened by being placed on pedestals. In fact, the windows are the only remaining prominent features in Italian composition, even where two series are comprised within one order, being generally more prominent in their cornices and pediments than the other projections. They are often decorated with smaller columns or pilasters (as in the Atlas Fragments, and that of the Legal Assurance Office, Fleet Street), and Palladio has sometimes loaded them by recumbent figures on the raking cornices of their pediments. Sometimes, as in the upper order of the Procuratie Nuove, by Scamozzi, at Venice, the windows (decorated with a lesser order) are carried up to the height of the capitals. In the court of the Louvre the pediments of the windows come immediately beneath the architrave of the order, so that in proportion to the columns the windows are to the window openings. In several orders become little more than deep moulded stringcourses dividing the stories of the building, and the columns mere expletive decorations attached to the piers. The ornamental details may be in imitation of the members of an ancient order, but the character of the antique itself is entirely gone. Even where the windows are kept more subordinate to the order itself, the effect of the latter is frequently diminished by the addition of a heavy attic pierced with numerous little windows, by turning its entire front in turn by a balustrade, having perhaps a formal row of statues on its pedestals, which viewed at a little distance assume the appearance of so many pinacles on the summit of the building, while the balusters themselves in such case suggest only an impost, while the perforated lattice, as a remarkable feature, appear to have originated, since there can be little doubt that their name is derived from Balaestra, the cross-bow, from which arrows were shot through apertures in the parapets of fortified buildings.

Notwithstanding the pedantic strictness with which rules are laid down for the different orders, they so seldom contribute anything either towards character or effect in external design, that the Italian style exhibits itself to most advantage. The columns have been reduced, and windows and arches made the chief features in the composition, and the façade crowned by a bold and rich cornice. Of this particular style, in which much may be effected by means of rusticated surfaces, a species of decoration well suited to irregular buildings, and adapted to it, and admitting very great diversity in itself, we have a small yet exquisite example in the Travellers' Club House, Pall Mall, whose two fronts serve to show what variety of expression may be thus obtained. The front court of the Somerset House is also a good sample of a peculiar Italian style, where an order is placed on a decorated basement.

Of late years the Italians have abandoned many of their worst architectural faults, corruptions, and caprices, and thus made good the deficiency and adapted it to their purposes with here and there an exception, forms so striking a contrast to the antique. But they are still inclined to 'swear by Vitruvius,' and cherish a reverence for Palladio and Vignola. Even Cagnola (who died in 1834), one of their most distinguished architects, seems to have had very little feeling for the beauties of Greek detail as connected with the orders. In fact Greek architecture has hardly been adopted in any one instance, if we except Canova's church at Frascati, which has an entire portion of the ranges of columns of the antient Doric order, whose frieze is enriched with reliefs in the metopes. For an account of the modern Palladian architecture of Italy we refer to a paper on the subject in the 63rd number of the Quarterly Review, which contains notices of several buildings not before described.

ITALIAN DRAMA. [ENGLISH DRAMA.]  
ITALIC SCHOOL of Philosophy comprises properly two or three schools, the Pythagorean and Epicurean. Occasionally however it has been employed in a more restricted sense, and Italian and Pythagorean have been used as equivalent to denote the same philosophical system. The looseness and inconsistency of these different acceptations of the phrase have led to much confusion in the history of philosophy, by giving rise to a personal connection of master and teacher between philosophers who maintained respectively the opinions of Pythagoras and Xenophanes. The peculiar fitness of the designation does not easily appear, and seems to have been owing to an idle endeavour on the part of Greek literary historians to give uniformity to their divisions of the history of philosophy, which were principally drawn from an outward circumstance of a local nature, rather than to any inherent difference of the school. Some six or seven hundred years after the death of the Academy, the Stoics, the Megarians, the Eleatics, the Ionians, and so forth.

ITALY, one of the great natural divisions of Europe, extends from its most southern point, Cape dell' Armi, in 17° 30' 25" E. long., on the boundary of Calabria and Apulia, to the Piave, the Adige, and the Ticino, which have their sources at the foot of the Pennine, Rham, and Nure Alps. It lies between 7° and 15° 30' E. long., the latter being the longitude of the most eastern point of Italy, near Otranto. The northern part of Italy is from the north-east to the north-west by the Alps, which sweep round it in a semicircle, beginning from the coast near Nizza, on the Mediterranean, and extending to the Adriatic in the north.

The ridge of the Apennines, which runs along the Rivers of Genoa, and the northern boundaries of Tuscany, to near Rimini on the Adriatic coast, divides Italy into two distinct regions. One of these regions is situated north of the Apennines, and is chiefly occupied by the basin of the Po and its numerous affluents; while its north-east extremity, which is contracted between the Carine Alps and the Adriatic, contains the basins of the Brenta, the Piave, and the Adige, and is surrounded by the Apennines. The north-western boundary is in length, from west to east, from Monte Vettese, in 7° E. long., on the river Isorno 13° 25', a distance of 320 miles. [FRIULI.] Its greatest breadth, from the Tuscan Apennines to the sources of the Adda, is about 150 miles. [PO, BASIN OF THE.] The Po, and the valley in which it lies, runs in a south-east direction, between the Adriatic and the Mediterranean seas, for above 500 miles, its breadth varying from 130 to 50 miles, and still less in some parts of Calabria. The Apennines, and the lower ranges which are connected with them, occupy the greatest part of the Italian peninsula. The tracts of level country, with the exception of the Roman Campagna and the plains of Foggia and Campania, are of inconceivable extent, and the peninsula may be viewed as divided into two great portions: the first, principally physical features by the long mountain range which traverses it in whole or in part. [APENNINES.] The Tuscan Apennines, after running in a direction east-south-east to within a few miles of the Adriatic near Rimini, make a bend to the south-south-east, and run parallel to and near the Adriatic coast, towards which they detach numerous offsets which terminate abruptly on the sea, whilst towards the Mediterranean the slope of the ground is much more gradual, the offsets or secondary ridges running more obliquely to the coast, and forming the indentation of the Adriatic; the principal valleys of the peninsula are on the western side, and the principal basins are those of the Arno, the Tiber, the Garigliano, and the Volturno. [ABRUZZO; ARNO; CAMPAGNA DI ROMA; PAPAL STATES; PAVIA; PESCHIERA DELLE TRAVERSINE; RIVIERE DE LA; ROMA.] From the sources of the Volturno and those of the Sangro, the main ridge of the Apennines begins to run more in the centre of the peninsula, leaving to the east the vast plain of Foggia [CAPITANATA], and to the west the plains of Campania.
Farther south, near the sources of the Ollanto, two ridges date themselves from the main group, one of which runs southward through the Messopian peninsula, and the other westward through the peninsula of Sorrento to Cape Campanella. The central chain continues to run southward between the basin of the Sele on one side, and that of the Sarno and Basento on the other. [BASILICATA.]

It then runs through Calabria, passing by Rouent and Basento on the other side, nearer to the western than to the eastern coast, but occupying with its offsets nearly the whole breadth of that part of the peninsula. [CAGNABRIA.]

Thus far the present Italian states, Lombardy, Parma, Modena, the Venetian territories, Bologna, Ferrara, and the Romagna. Southern Italy includes Tuscany, the greater part of the Papal States, and the kingdom of Naples. With regard to climate and aspect, the narrow strip called the coast and the two flanks of the Apennines and the sea, may be included in Southern Italy. The islands of Sicily and Sardinia, and several minor ones near the coast, belong to Italy. A general view of the surface and geology of Italy is given in the article APENNINES.

The climates of north and south Italy are very different. In the north, frosts and snow are of common occurrence in winter, and delicate plants, such as the orange and the lemon, are rarely if ever brought into the south, especially near the sea-coast, tender plants thrive in the open air, and in the southernmost part of the peninsula, as well as in Sicily, even tropical plants, such as the sugar-cane, the cotton-plant, the Indian fig, and others, are found flourishing. A journey from the coast, there is great variety of climate in the peninsula, and the staple products of Italy are corn, rice, wine, oil, silk, and fruits of every kind, and the mountains afford summer pasture for the cattle. The system of irrigation prevails in the north, especially in Piedmont and Lombardy; which however do not include one third of Italy: he annexed another third to the French empire, and gave naples to his brother-in-law Murat. in 1814 the French evacuated Italy, and the former states were restored, with the exception of Venice, which remained under Austria. Genoa was annexed to the Sardinian monarchy, which kingdom and that of the Two Sicilies are now the two principal Italian powers: the Pope and Tuscany are the next in importance. Several little territories and jurisdictions on the coast and the island of Elba were annexed to Tuscany, and it was a pity that Napoleon took the islands of Lake Maggiore and Lake Como, which he did not understand to be of so much importance. Maria Louisa, duchess of Parma, the duke of Lucca should succeed to her states, and Lucca should be annexed to Tuscany. Upon the whole therefore the work of amalgamation was done more satisfactorily still further prolonged to the present century. The best general historians of modern Italy are Guicciardini, 'Storia d'Italia,' with the continuation by Botta till 1814; Muratori, 'Annali d'Italia,' continued by Coppi till 1820, and Bosti, 'Storia d'Italia Antica e Moderna.' Histories of particular states, towns, and periods are innumerable; the history of Florence has been written by Malaspini, Dino Compagni, Villani, Poggio, Bruni, Machiavelli, Varchi, Soggi, &c. Pignotti and Galluzzi have written a general history of Tuscany; that of Naples by Giannone, has been continued by Colletta to the present time; Giuliani, Rosmini, and Verri have written the history of Milan; a series of writers have treated the history of Venice, 'Istorici delle cose Veneziane,' and the historians of Genoa are equal in number, and the history of Italy which cannot boast its native chronicler. Among the foreign historians of Italy, Sismondi deserves especial mention for 'Storia Statistica dell'Italia,' (Vienna, 1823); the areas are taken from Neugebauer's 'Gezonde Italia's' (Vienna, 1822), but
they are to be considered only as approximations, as there is considerable discrepancy between the various authorities.

The Lombardo-Veneto kingdom, of which the emperor of France is the nominal protector, consists of Provinces of Lombard, or government of Milan, with an area of 8460 square miles, and 2,273,000 inhabitants; and Provincie Veneto, or government of Venice, with 9297 square miles, and 2,755,000 inhabitants.

The Sardinian monarchy consists of two great divisions: the Stati di Terra Ferma, or continental territories, with an area of 28,830 square miles, and 3,750,000 inhabitants, and the island of Sar-dinia, with an area of 8900 square miles, and 310,000 inhabitants. It is divided, apart from the island of Sardinia, into three great divisions, each of which is divided into smaller districts. 4. Ducy of Lucca, with an area of 470 square miles, and 152,000 inhabitants. 5. Ducy of Parma, with an area of 3900 square miles, and 54,000 inhabitants. 6. Ducy of Modena, with an area of 3095 square miles, and 150,000 inhabitants. 7. Republic of San Marino, with an area of 27 square miles, and 700 inhabitants.

The most densely inhabited state is that of Lucca, which contains 362 individuals for every square mile, and one proprietor for every four inhabitants. Next to it in population is the Republic of San Marino, with an area of 27 square miles, and 700 inhabitants. The kingdom of the Two Sicilies, consisting of two great divisions: Domini di qui dal Faro, or kingdom of Naples, with an area of 31,610 square miles, and 5,809,000 inhabitants; and Domini di là dal Faro, or Sicily, with an area of 12,390 square miles, and 1,651,000 inhabitants.

The most densely inhabited of the islands is Sicily, where the population is 18,741 per square mile. The other islands are less densely populated. The population of the islands is 2,707,000 inhabitants.

The culture of Italy is known throughout the world, and is one of the greatest sources of national pride. The Italian language is the official language of the country, and is spoken by the majority of the population. The Italian economy is based on agriculture, and is one of the most advanced in the world. The Italian people are renowned for their intelligence, creativity, and beauty. The Italian culture is rich in art, music, and literature, and is enjoyed by people all over the world.

The government of Italy is a constitutional monarchy, with a president as the head of state and a prime minister as the head of government. The country is divided into 20 regions, each with its own government and parliament. The national parliament, the Chamber of Deputies, is elected every five years, and the Senate is appointed by the president for a nine-year term. The country is a member of the European Union and the United Nations, and is an active participant in international affairs.

Italy is a popular tourist destination, attracting millions of visitors each year. The country is known for its stunning landscapes, rich history, and vibrant culture. Many people also visit Italy to experience its cuisine, which is famous for its use of fresh ingredients and simple preparations, and its world-renowned coffee culture. The country is also home to many of the world's most important art and architectural treasures, including the Roman Colosseum, the Vatican City, and the Sistine Chapel. Overall, Italy is a country with a rich and diverse history and culture, and is a must-visit destination for anyone interested in learning more about the world.
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A

by Grossi and Porta.
selection of Milanese poems has thus the early versifiers, including princes and courtiers,
been made,
Collezione delle migliori Operc scritte in Frederic II. and his chancellor Ptetro delle Vigne at
Dialetto Milanese,' 12 vols. I2mo
2. The Venetian is one
Naples, Guido Guinicelli and Fru Guidotto at Bologna,
of the most graceful of the Italian dialects, and under the Guido delle Colonne, a Sicilian, Can della Scala at Verona,
late republic was the language of the senate and of the
Guido da Polenta, prince of Ravenna, wrote in a language
courts of justice.
There are numerous writers in this dia- winch differs little from that of Brunei to Latini, Guilt on
lect; among others, Grilti, Lamberti, Goldoni, and, in our d'Arezzo, Guido Cavalcanti. and other Tuscan poets of the
time, Buratii. A selection has been likewise made of these, same age.
But Tuscany had this advantage over the rest,
•Collezione delle migliori Opere scritte in Dialetto Vene- that its familiar spoken language was more generally poziano,' 14 vols. 12 mo.
3. The Mantuan dialect has been
lished, so as to resemble the poetical and select language
illustrated by the writings of the eccentric wayward monk of the other Italians, and the Tuscan poets had the benefit
Folengo. 4. Calvo has written in the Piedrnontese, and of writing in a living dialect, lingua volgare,' and their
Alfi eri has given a short vocabulary of it, with the correpoems were understood by the generality of their countrysponding words in Tuscan. The Piedraontese has consi- men. The writers of the fourteenth century, Dante, Dmo
derable affinity with the Languedocian and other Romance Compagni, Petrarch, Boccaccio, Cino da Pistoja, Sacchetti,
dialects.
5. Genoese: Foglietta and Cavalli are two of the
Villa ni, Pandolfini, Mere all Tuscans, and they permanently
it writers in this dialect.
6. The Bolognese is one of the
impressed on the written language of Italy the stamp of
;t
uncouth dialects of Italy, but it has some poets, Tuscan spirit and idiom. As people of education in every
others Giulio Cesare Croce.
These are the prin- part of Italy applied themselves to write in the 'lingua vollialects of North Italv, besides which there are many
gare,' the use of writing in Latin being gradually dropped,
t local ones, such as fcresciano, Bergamasco, that of this lingua volgare, or written Italian, began to form an
[adua, which resembles the Venetian, and that of the essential part of education, and all those who received school
Viuli,
In South Italy the principal dialects are the fol- instruction learned to speak it more or less correctly. It
lowing:
7. The Neapolitan, or Apulian, was the language
came afterwards to be adopted in many places as the language
spoken at the court of Frederic II. in the thirteenth cen- of the government, of the courts of just ice, of the pulpit, a nd
tury, and in which the history of that prince by the conof the stage, and thus it has been styled emphatically the
temporary chronicler Matteo Spiuello is written. It was Italian language, because it is used as the general medium
afterwards spoken at the court of the Anjou and Aragonese of communication, written and oral, all over the peninsula.
kings of Naples, and has been in fact used within our own But it is nowhere, except fn Tuscany and in part of the
times by King Ferdinand and his courtiers. It is very Roman states, the language of the lower orders, the lancopious, abounds with diminutives and vituperative terms, guage of the nursery, of the markets, of convivial famiand is well suited for broad humour and for the purpose of liarity, of every-day life. Its general adoption is however
imitative harmony. The Neapolitan anions; all other Italian strongly urged of late years by the various governments,
dialects has been perhaps the most cultivated by writers.
and particularly attended to in all elementary schools.
""
ere is a collection of Neapolitan poems in 28 volumes,
The writers of the fourteenth century are called by the
eral of which, such as those by Cortese, Sgruttendio,
Tuscans the 'Trecentisti,' and they are considered by many
passo, both in the humorous and the pathetic styles,
In the fifas the purest models of Italian composition.
re considerable poetical merit.
The other South Italian teenth century there was a retrograde movement in the culect is, 8, the Sicilian, which can boast of Giovanni Meli,
tivation of the Italian language. The Latin again resumed
d not many years since, who ranks among the first lyric the ascendency as a writton language, and the lingua volpoets of Italy, and whose works have been collected and gare was left to the vulgar, or employed merely for familiar
published in seven volumes. Between the Neapolitan and purposes. The discovery of the aniient classics, the revival
Sicilian is the Calabria n dialect, which participates more of the study of the Roman law, the arrival of many learned
the latter, and in which there is a spirited version of Greek refugees Hying from the Ottoman conqueror, the inTasso's * Gerusa lemma'
Lastly, 9, the dialect of the fluence of the Roman hierarchy, whose language was the
Island of Sardinia has a great resemblance to the Cata- Latin all these circumstances gave a general impulse
mian and Valencian and other dialects of the Romance or towards classical learning, and the Italian literati disdained
1 language. The Sardinian is also a written dia- to write except in the language of their presumed foreare is an article 'On the Study of the Italian fathers.
Alberti, Bracciolini, Bruni, Filelfo, Panormita,
and Literature* in Nos. X. and XII. of the Platina, Pontano, Valla, Ficino, and other learned men and
of Education,' and another On the Dialects and also women of that age, wrote in Latin. But Lorenzo do'
ture of Southern Italy* in No. IX. of the * Foreign Medici at Florence, the Este at Ferrara, the Gonzaga at
;erly Review' for November, 1829.
Mantua, countenanced Italian poetry, and Pulci, Bello, and
he Italian dialects must not be considered as corrup- Bqjardo gave the first specimens of the Italian epic, while
tions of the written Italian, but as languages which have
Poliziano and Lorenzo himself excelled in lyrics. In this
an affinity to and are anterior to it, and derived from the same century Cennino Cennini wrote an Italian treatise upon
corrupt dialects of the familiar Latin or Roman which were
painting, and the illustrious Leonardo da Vinci, painter,
spoken in the provinces of Italy remote from Rome, and architect, and engineer, composed his precepts on the same
also in part from the older languages of Italy art, which were published long after his death ;
Trattato
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pgistiog previous to the Roman conquest.
The intlux
of the northern nations effected a total corruption of the
spoken Latin; articles and auxiliaries were introduced;

terminations were altered or neglected
some, though not
great many, words of Teutonic origin were introduced
various dialects resulted from these various combinations
were called by the general name of Roman c, Roor Romance language, like those spoken in the
of France* The dialects spoken in Central Italy reined a greater affinity to one another, as well as to their
common Latin parent. If we look at the old chronicles
and otber documents of the thirteenth century, written in a
familiar style, whether at Naples, Rome, Bologna, or
Tuscany, vre see a great similarity in their syntax and
etymology. The oral dialect of Tuscany seems to have
itained a considerable degree of polish and grammatical
"f sooner than the others; probably it had never
corrupt as the rest, owing to the local position of
which was not extensively or permanently colonized
irthern tribes, and also owing to the early independof he Tusrnu cities, and their prosperity and civilizaIn the rest of Italy a few men of education used
x oral language more refined than the generality of the
>, which was called Lingua Aulica, or Cortigiana, and
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I

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della Pittura/ 1651.

The

sixteenth century was the second »ra of Italian
literature. It has been styled the age of Leo X., because that
pontiff, in the early part of the century, surrounded himself
with some of the most learned men of his time. But the
two great historians and statesmen Machiavelli and Guicciardini, the
Divino Ariosto,* and Michelangelo Buonarroti,
who was sculpk.v, painter, architect, and poet, are four
names sufficient of themselves to adorn any age or country.
The other principal writers of the sixteenth century were:
the historians and biographers, Varchi, Segni, Bembo,
Paruta, Davanzati, Costanzo, Vassari, Cellini ; the poets,
Sannazaro, Berni, Molza, Trissino, Guarini, and above all
Tasso; the essayists, C asti^lione, Delia Casa, Speroni, and
Bottero; the critics, Castelvetro and Salviati; the novelists,
Bandello, Firenzuola, Grazzini
the architects, Barocci da
Vignola, Palladio, and Marchi, and numerous others in
almost every branch of learning.
The learned Sigonio,
Baronius, Pauvinio, Vida, the jurists Alciati and Turamini, the mathematicians Maurolico and Cardano, and
many other men of science, wrote in Latin. The authors of
the sixteenth century are called by the Italians Cinqueceutisti.'and are considered as models of Italian writing, though
some critics observe in most of them a Ming off from the
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freshness and raciness of the great Florentine writers of the fourteenth century.

The seventeenth century, called by the Italians the age of the Scientists, exhibited a degeneracy of taste, both in literature and the arts. The learned yoke of Spanish vice-

ors was replaced by the threats of the papacy, the horrors of clerical inquisition, ignorant or careless of the very ele-

ments of government and administration, weighed heavily over the finest regions of Italy. The miseries resulting from these have been described by Bocchieri, Savonarola, Giannone, and again vividly retraced in our own time, by

Manzoni in his 'Promessi Sposi,' and by Cantù in his 'Ragionamenti sulla Storia Lombarda del Secolo XVI.'

The Italian writers, especially the poets, adopted a turgid hypothetically antique form, complete with false corruptions, and three
tentacles of rhetorical adulthood. The school of Marini and of his
disciple has become proverbial as the school of the depraved taste in composition. However the same causes of mental de
degradation and corruption did not operate equally over all the peninsula. Tuscany, Venice, Genoa, Piedmont,
retained their independence and with it their national spirit.

According to the cultivated and with their writings distinguished by their sentiments as well as by their language, such as the celebrated Sarpi, the learned prelates Bentivoglio, Pallavicino, and Bellarmino; the historian Davila; the Jesuits Segneri and Bartoli; the poets, Guidi, Chiabrera, Filangieri, Tassoni, Rinuccini, Menzini; the paint-
er and poet Salvator Rosa; the philologist Savinii; while Italy

embraced the new in the domain of the picturesque, Torricelli, Malpighi, Borelli, Marsigli, Redi, Viviani, and Guglielmi.

Antonio Serra, one of the earliest, if not the earliest, writer on political economy, published in 1613 a treatise on the various causes of poverty which causes poverty may become enriched; a work neglected and forgotten for ages after. The historian Noris, the learned antiquarian Bianchini, and the jurist Gravina, wrote in Latin.

In the eighteenth century Italian literature assumed a new character. The historian Manzotti, Muratori, and Gian
none, and the philosophic writers Vico, Stella, and Genovesi

brought a new light into their respective departments. The spirit of investigation and deep reflexion was now busy at work.

Goldoni effected a revolution in the drama; and Metastasio imparted a new vigour and poetical freshness to the melo-
drama or opera. In the department of criticism there were Zeno, Baretti, Gozzi, Mazzucchelli, and Cesaretti;

Milizia, Lanzi, and Bottari wrote eloquently on the fine arts; Martini and Tartini, on music; Verci, Carli, Galiani, Neri, on political economy; Bettinelli, Tira
boschi, and Corniani, on the history of Italian literature; Buona
dele, on the history of philosophy; Beccaria, Filangieri, and

Marco Pagano, on legislation; Valisneri and Spallanzani, on natural history; Volta and Galvani, on electricity; and Passeroni, Varano, and Parnini wrote moral poetry; and lastly Alferi created the Italian
tragedy.

The invasion of Italy by the French in 1796 and the political revolution which followed, whilst they served to stimulate the minds of the Italians to exertion, had an unfavourable influence upon the language. French was the language of the conquerors, and it became the fashionable

language of the conquered. Those Italians, and they formed

an immense majority, who did not know French, intermixed French idioms with their already imperfect and slight utterance of the language, and a sporadic unseemly compound was thus formed which was neither French nor Italian, and which, instead of absorbing the political essays of the newspapers, the pleads, and even the acts of government. A few writers, formed in a better school, opposed the torrent; among these are Alferi, Monti, Foscolo, Ippolito Fidenzmonte, Napi
gne, Cessari, and Gedoni. The other principal writers of the present century are—the historian Botta, the best that Italy has produced since the sixteenth century; the tragic

dramas Niccolini and Pellico; the romantic poets Grossi and Setini; the didactic Arieti; the satirist D'Elie; and also Arbogast, philosopher, dramatist, and essayist; Manzoni, who has given Italy the first model of an his-
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in sum, the Italian stage with high, the other principal writers of the present century are—"the historian Botta, the best that Italy has produced since the sixteenth cen
night, or every night and morning, till the cure is perfect, which will require from three days to a fortnight, according to the severity and extent of the disease. The ointment must remain on the parts after each application, and occasional warm fomentations ought to be used during the treatment.

ITHACA, called Thun by the modern Greeks, celebrated in ancient poetry as the country of Ulysses, and now one of the seven Ionian Islands, is situated north-east of Cephalonia, from which it is divided by a channel between three and four miles wide. It is twelve miles long, and about four miles in its greatest breadth. On the east coast of the island, facing the mainland of Acairna, from which it is about twenty miles distant, is the deep Bay of Bathi, with a good harbour, and the little town of Bathi, with 2000 inhabitants. The country around is planted with vines, olive and orange trees. The remainder of the island is hilly and rocky, especially towards the western coast, with small but deep valleys between the hills, which have a good soil, and produce currants, wine, corn, oil, and all kinds of fruits. The red wine of Ithaca is one of the best in Greece. There is abundance of springs on the island, but wood is scarce. The whole population is 5366, and is scattered among eight or nine villages. The habits and manners of the natives resemble those of their neighbours of Cephalonia. They belong to the Greek church, and the clergy are under the direction of a protopapa. The cultivation of the soil, fishing, and some coasting trade, form the occupation of the people. They experiment with currants, and produce honey.

ITNERITE. This mineral occurs crystallized in rhombohedral and hexagonal, usually in conchoidal fracture. Frequently imperfect conchoidal, passing into uneven. Hardness 3/4 to 6/9. Colour bluish or ash-grey. Lustre resinous to vitreous. Specific gravity 2.3. It forms a jelly when put into acids. Fuses per se before the blowpipe, with effervescence of water, and fuses into an opaque balsam glass. It yielded by analysis—

<table>
<thead>
<tr>
<th>Substance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soda</td>
<td>11.29</td>
</tr>
<tr>
<td>Potash</td>
<td>1.57</td>
</tr>
<tr>
<td>Silica</td>
<td>30.17</td>
</tr>
<tr>
<td>Alumina</td>
<td>28.40</td>
</tr>
<tr>
<td>Lime</td>
<td>5.24</td>
</tr>
<tr>
<td>Oxide of iron</td>
<td>0.62</td>
</tr>
<tr>
<td>Sulphate of lime</td>
<td>4.59</td>
</tr>
<tr>
<td>Common salt</td>
<td>1.62</td>
</tr>
<tr>
<td>Sulphured hydroxy and water</td>
<td>10.76</td>
</tr>
</tbody>
</table>

ITURBIDE. [MEXICO.]

IVAN. [RUSSIA.]

IVES, ST. [CORNWALL; HUNTINGDONSHIRE.]

IVICA, or IBIZA, the Euboea of the ancient geographers, one of the Balearic Islands, lies forty-two miles south-west of Majorca, and is about twenty-seven miles long from north-east to south-west, and about fifteen in its greatest breadth. It is divided by a channel three miles wide from the island of Formentera, which lies due south of it. The south-west point of Iviica is fifty miles east by north of the Cape Nao on the coast of Valencia on the mainland of Spain. The island is hilly and stony in many parts, but in others very fertile. It produces oil and wine, corn, fruits of every kind, a large stock of sheep, and pastures near the coast abound with fish. The manufacture of salt in salt-pans constitutes a great branch of industry. The mountains are covered with timber-trees. The inhabitants are indolent and uninformel; their mode of agriculture is slovenly. They speak a dialect of the Iberian language, and are divided into five parishes or districts, namely,—Llano de Villa, Sartia a Eulalia, Balanxet, Poormala, and Do Salinas. The capital, Iviica, built on a peninsula on the south-west coast of the island, is fortified, has a good harbour, and reckons about 6600 inhabitants: it has a cathedral and six other churches, two hospitals, and a public school or gymnasia. (Muy interesante de Geografia Espanola.)

IVORY, the name given to the substance which contains the tasks of elephants, is extensively used in the arts for making or embellishing numberless small articles in almost universal use, and which do not require to be further described. The principal supplies of elephants' teeth to this country are derived from the west coast of Africa and from Ceylon. Out of 5845 cwt. imported in 1837, 2246 cwt. came from the former quarter, and 2927 cwt. from Ceylon. The remaining imports are from the coast of Barbary, the Cape of Good Hope, Madagascar, and Siam. The United States of America also send to this country some of the ivory which they import. The total quantities imported and used respectively in each of the last ten years have been—

<table>
<thead>
<tr>
<th>Year</th>
<th>Imported</th>
<th>Taken for Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>1828</td>
<td>3596 cwt.</td>
<td>3531 cwt.</td>
</tr>
<tr>
<td>1829</td>
<td>4345</td>
<td>3605 cwt.</td>
</tr>
<tr>
<td>1830</td>
<td>5469</td>
<td>3628 cwt.</td>
</tr>
<tr>
<td>1831</td>
<td>5267</td>
<td>3368 cwt.</td>
</tr>
<tr>
<td>1832</td>
<td>2988</td>
<td>5168 cwt.</td>
</tr>
<tr>
<td>1833</td>
<td>5042</td>
<td>3958 cwt.</td>
</tr>
<tr>
<td>1834</td>
<td>6732</td>
<td>4262 cwt.</td>
</tr>
<tr>
<td>1835</td>
<td>5204</td>
<td>3698 cwt.</td>
</tr>
<tr>
<td>1836</td>
<td>6324</td>
<td>4384 cwt.</td>
</tr>
<tr>
<td>1837</td>
<td>5846</td>
<td>3725 cwt.</td>
</tr>
</tbody>
</table>

IVORY BLACK, or, as it is commonly called, animal charcoal and bone black, is prepared usually, as the latter appellation indicates, from bones heated in iron cylinders to dissolute the more volatile products of the animal matter which they contain, and to leave the phosphate of lime intermixed with much charcoal and some of the saline portions of the bone. Carbonate of ammonia is one of the products obtained.

Animal charcoal does not greatly differ in appearance from bone charcoal and the products of the latter. It is, however, of a more reddish colour than common charcoal; thus an ounce of animal charcoal will in a few minutes entirely remove the colouring matter of a pint of red wine. This effect is more readily produced on hot than on cold fluids. It is largely employed on account of its decolourizing power in sugar refining, and the finer the powder to which it is reduced the greater is its efficacy.

It is difficult to give a satisfactory explanation of the decolorizing power of animal charcoal; but it appears that it is entirely dependent upon the carbonaceous matter, the action of which is like that of charcoal, but is more rapid and perfect. It combines with the carbolic, or decolouring matter of a pint of red wine. This effect is more readily produced on hot than on cold fluids. It is largely employed on account of its decolourizing power in sugar refining, and the finer the powder to which it is reduced the greater is its efficacy.

The system of irrigation by water drawn from the Dora and other streams is here in full operation. Silk is also made, and the mountains produce plenty of chestnuts.

IVRE'A, a province of the Continental Sardinian States, stretches from the foot of the Alps, which divide it from Savoy and the Val d'Aosta, southward to the Po, and is watered in its length, which is about 20 miles, by the Dora Baliva. The Orea, another affluent of the Po, having a large mouth, is the chief harvest of the province. The Dora Baliva, which supplies, is derived from Mount Icara, one of the high Granias Alp, waters the western parts of the province of Ivrea, where it borders upon that of Turin. To the east, Ivrea is bounded by the province of Vercelli; and to the north, by that of Asti. The country consists in great part of hills, being the lowest offsets of the Alpine chain, and some fine valleys between; the southern part of it merges into the great plain of the Po. The soil produces abundantly corn, good wine, hemp, which is greatly raised, and the finer the powder to which it is reduced the greater is its efficacy.

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VOLUME XII.

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INDEX.

mains of antiquity at Itea; among others, a fine urn with figures in relief. The cathedral is built on the ruins of a temple of the Sun. Itea, called antiquity Eporedon, was a town of the Salassi, and afterwards was colonized by the Romans.

The other towns of the province are: Castellamonte, with 4,000 inhabitants; Calacalato, 3,400, and a college; Cucerno, 3,000 in, and a grammar-school and copper-works; Agliate, 3,000 in., with a castle and a handsome house; S. Giorgio Canavesu, 3,300 in., and a college; Locana, 5,000 in., with brass-works; Valperga, 2,700 in.; Ponte, 2,600 in., in a delightful valley watered by the Orca and its affluent the Sagona. In this valley are many natural curiosities, and the traces of silver and gold mines, said to have been once worked by the Romans. Copper is found in the Val d'Orca, and iron in the Val Brozio, where there are several iron-works. There are several other towns of above 2000 in., such as Azezgo, Bolongo, Vische, S. Giusto, Pavone, Chiaverrano, &c. (Neighbour, Gemäld die Italien.; Calendario Sardo; Saussure, Voyages dans les Alpes.)

IX A. [Liturgicians.]

IXALUS, a form of herbivorous Mammifers, placed, with doubt, by Mr. Ogilby under his family Moschidae. That zoologist observes that the genus, founded upon the observation of a single specimen, may eventually prove to belong to a different family. It is a fact that it differs little from the true Antelopes; but even supposing it to be correctly placed among the Moschidae, other forms, he observes, are still wanting to fill up the chasms which evidently exist among that group. The type is Ixalus Probato.


IXORA, a genus of Rubiaceous plants of the tribe Canchonaccen, so named, it is supposed, from the Indian god Iswara. The genus is characterized by having a small four-toothed calyx; corolla 1-petalled, funnell-shaped; tube long; with the four stamens in its mouth; ovary 2-celled, 1-seeded; style simple; berry drupaceous, inferior, 2-seeded. The species are numerous, and chiefly confined to India and the Oriental Archipelago. They form shrubs or small trees, with opposite leaves, and stipules arising from a brown base, but acute at the apex. The flowers are in terminal corynas, and are usually red, but sometimes white, and are generally highly ornamental, whence several are cultivated in our hothouses, where they require to be kept in a moist heat to thrive well. Some of the species are used medicinally, but not to the extent of Coccineum, as employed in Java as a stimulant, and Rheedea two or three other species; but none appear to be possessed of any very active properties. IXOS, a genus of birds established by M. Temminck, for those thrushes which have the bill shorter than usual, and embracing the greatest part of the Brachyptinae and nearly the whole of the Craterodinae of Swainson. Ornithologists generally admit this genus; but Dr. Swainson is of the opinion that, though it may be continued in artificial systems, it cannot be adopted in natural classification, since it includes genera long before defined, and units under one name birds which actually belong to different families.
J., in the English language, has a sibilant sound, closely connected with that of the syllable di before a vowel. [Alphabet, p. 373.] It has a similar sound in the French tongue; but in German it is pronounced altogether as our y before a vowel. What its pronunciation was in Latin may admit of dispute, for although it is generally laid down that its power with the Romans was the same as with the Germans, there is reason for thinking that our own sound of the letter was not unknown to the ancient inhabitants of Italy. The name of Jupiter was undoubtedly written originally Diupiter, so Janus was at first Diana, just as the goddess Diana was called by the rustics Jana. (See D and J.) The argument might be strengthened by comparing the Latin jungo with the Greek ζυγεύω, Jupiter with zeu warp, &c., and also by referring to the modern Italian forms, Giogio, giovere, giovenco, giovarne, &c. There is no absurdity in supposing that two pronunciations may have co-existed in the same country. As to the form of the letter i, it was originally identical with that of j, and the distinction between them is of recent date. Exactly in the same way, among the numerals used in medical prescriptions, it is the practice to write the last symbol for unity with a longer stroke, tj, vi, &c.

In the Spanish language t represents a guttural, and is now used instead of x, which had the same power: thus Jeres rather than Xeres is the name of the town which gives its title to the wine called by us sherry. For the changes to which j is liable, see D, G, and L.

JABIRU, the name of a genus of Grallatorial or Wading Birds, Mycteria of Linnaeus, and thus characterized:—

Bill long, conical, smooth, robust, compressed, and pointed; upper mandibular trigrinal and straight, the lower thicker and turned up. Head and neck more or less bare of feathers. Anterior toes united at the base by a membrane. Size gigantic.

Geographical Distribution of the Genus.—South America, Western Africa, Australasia.

Habits almost entirely the same with those of the Storks.

There are three species known, distributed geographically as above. We select Mycteria Americana as an example.

**Mycteria Americana.**

**Description.**—Very large in size, white; the head and neck (excepting the occiput) without feathers, and covered with a black skin, which becomes reddish towards the lower part. On the occiput are a few white feathers. Bill and feet blacker extremities in the same direction.

**Locality.** South America, where it frequents the borders of lukes and marshes, preying on reptiles and fish. [Horn, vol. xii., pp. 165, 166.]

JABLONSKI, PAUL ERNEST, the son of Daniel Ernest Jablonski, a distinguished minister of the Protestant church, was born at Berlin in 1633. He was educated at the university of Frankfort on the Oder; where he applied himself with great diligence and success to the study of the Coptic and other Oriental languages. At the age of twenty-one he was sent at the expense of the Prussian government to the various public libraries in Europe, in order to pursue his studies and to make extracts from Copie MSS. In 1729 he was appointed minister of the Protestant church at Liebenburg; and in 1722, professor of theology at Frankfort on the Oder; and also minister of the Protestant church in the same place. He died on the 13th of September, 1757.

The most important of Jablonski's works are:—Pantheon Egyptiornis, sive de Diis eorum Commentarium, cum Prolegomenis de Religione et Theologia Egyptiornis, 3 vols. 8vo., 1750-52; 'De Memnonae Graecorum et Egyptiorum, hujusque celeberrimis in Thebaide Situs,' 4to., 1753; 'Remphah Egyptiorum Deus ab Inhabitatis in Deserti Cultur,' 8vo., 1751; 'Disquisitiones Academicae de terra Gosen,' 4to., 1735, 1736; 'Disquisitio de Lingua Lyceonica' (which is mentioned in the Acts of the Apostles, xiv. 11), 4to., 1714, 1724; 'Exercitationes Historicae Theologicae de Nestoriamismo,' 8vo., 1724; 'De ultimis Pauli Apostoli Laboribus in Lucae prætermissis,' 4to., 1746; 'Institutiones Historiae Christianæ Antiquioris,' 8vo., 1754; 'Institutiones Historiae Christianæ recentioris,' 8vo., 1756. Several of these works have been republished with many additions and corrections by Te Water, under the title of 'Opuscula quibus Lingua et Antiquitates Egyptiornis, diffusa Librorum Sacrorum Loca, et Historiarum Ecclesiasticarum Illustrationes exstriante,' 4 vols. 8vo., 1764-1765.

JACAMA [Kingfishers.]

JACANA. [Kallide.]

JACCHUS, or IACCUS (Mammology), the name of a genus of monkeys applied by Geoffroy, Desmares, and others to the form denominated Hapale by Illiger, Oustritra of the French, the type of which may be considered to be Simia Jacchus of Linnaeus.

M. Geoffroy treats them as a family divided into two subgenera (Hapale and Midas), under the name Arestopithecus; but the term Arestopithecus, it seems, had been applied by Gesner as a denomination for another animal, probably the Three-toed Sloth, whilst the latter uses Galeopithecus to designate the Saguin.

Generic Character. — Upper intermediate incisors larger than the lateral ones, which are isolated on each side; lower incisors elongated, narrow, and vertical, the lateral ones longest; upper canine teeth conical and of moderate size; two lower ones very small.

**Dental Formula:**

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<tr>
<th>Teeth Type</th>
<th>Formula</th>
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<tr>
<td>Incisors</td>
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<tr>
<td>Canines</td>
<td>1-1</td>
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<tr>
<td>Molars</td>
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<td>6-6</td>
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=36.

Size small, muzzle short, facial angle about 50°. Head round, prominent at the occiput; the five fingers armed with claws, with the exception of the thumbs of the posterior extremities, which are furnished with nails; thumb of the outer hand armed with a nail. The species has been so far misused as to place the form in that part of the world, does not appear.

The species, which are not few, have been separated into
of one; but the others beginning to suck, she became careful of them and affectionate to them. The male seemed more fond of them than the mother, and assisted her in her care of them. Lady Rolle addressed a letter to the secretary of the Zoological Society of London (February, 1835), giving an account of the birth of two young ones, the product of a pair of Ovisitidts (Ovisiciculus, Geoffr.), in her ladyship's possession. The parents were obtained in London during the preceding summer, and the young were brought forth on the 1st January. One was born dead, but the other was surviving at the date of the letter, being then about six weeks old, and appearing likely to live. It was every day put on the table at the dessert, and fed upon sweet cake. Lady Rolle stated that the mother took great care of it, exactly in the manner described by Edwards in his 'Gleanings.' It was observed that young of the same species had been born at the Society's Gardens, but not living, and that a female in the collection of the president, the Earl of Derby, at Knowsley, had produced, about the same time as Lady Rolle's, two living and healthy young ones, which were then still thriving. (Zool. Proc.)

**Description.**—This appears to be the Sinus Jacchus of Linnaeus and others; Callithrix Jacchus of Erxleben; Horatio Jacchus of Illiger and Kuhl; Cercopithecus Jacchus of Blumenbach; Capi, Sagoun, Sagoun, Sangalin, and Sanglin, of Edwards and various authors, the latter terms being probably derived from Solenim, the name by which it is said to be known near Bahia; Ovisitidt of Buffon and the French; Striated Monkey of Pennant.

Length of body about eight inches; tail rather more than eleven; colour olive-grey, darkest on the head and shoulders, where it becomes nearly black; tail and lower part of the back barred or annulated with pale grey; lower parts of extremities brownish-grey. Face of a flesh colour; two tufts of pale hair spring round the ears; front claws hooked and thick.

**Habits.**—The habits of the genus generally are squirrel-like, though they are, occasionally at least, carnivorous. **Jacchus vulgaris**, in a wild state, is omnivorous, feeding on fruits, roots, seeds, insects, and little birds or nestlings. The individual (in captivity) from which Edwards took his drawing fed upon biscuits, fruit, greens, insects, snails, &c., and once, when loose, it suddenly snatched a Chinese gold-fish from a basin of water and devoured it: Mrs. Kennon, to whom it belonged, after this gave it live eels, which frightened it at first by twisting round its neck, but it soon mastered and ate them. Mrs. Moore, of Rio Janeiro, sent a living specimen of *Jacchus penicillatus*, which was said to have been obtained from Bahia, to the Zoological Society of London, with the following note: 'Like most monkeys, it will eat almost anything; but its chief and favourite food, in its wild state, is the banana. It is a very delicate animal, and requires great warmth; and its very beautiful tail is in this respect eminently conducive to the comfort of the little creature, who, on all occasions when he requires warmth, rolls himself up in the natural box with which Providence has in its wisdom endowed him.'

The Ovisitidts, or Sanglin, not unfrequently breed in confinement. Edwards notices a pair that bred in Portugal, and Mr. F. Cuvier possessed two which had young. Three little ones were born, and the female soon ate off the head.

**Jacchus vulgaris.**

Mr. Gray places the form among the Anthropomorphous Primates in the family Sartiguidae, and in its last subfamily the 5th, *Harpalinae* (Hapalina?), which is immediately preceded by *Sagunina*.

Mr. Swainson, who arranges it under his family *Cebidae*, gives the group the appellation of *Mouse Monkeys*, because the large cutting teeth in the lower jaw strongly indicate, in his opinion, 'a representation of the order *Girres.* [Misas.]

**JACKAL,** or TSCHAKKAL, Chacal or Loup dore of the French, *Achow* of Buffon, *Canis Aureus* of Linnaeus.


**Description.**—Yellowish-grey above, whitish below, thighs and legs yellow, ears ruddy, muzzle very pointed, tail reaching hardly to the heel (properly so called). The colours sometimes vary, and the back and sides are described by Mr. Bremett as of mixed grey and black, and abruptly and strikingly distinguished from the deep and uniform tawny of the shoulders, haunches, and legs. The head nearly of the same mixed shade with the upper surface of the body.

**Geographical Distribution.**—India, other parts of Asia, and Africa. Cuvier says that Jackals are met with from India and the environs of the Caspian Sea to Guinea, but that it is not certain that they are all of the same species.

Habits gregarious, hunting in packs, and the pests of the countries where they are found, and where they burrow in the earth. In their huntsings the Jackals will frequently
attack the larger quadrupeds, but the smaller animals and poultry are their most frequent prey. Their cry is very peculiar and piercing. Captain Beechey notices it as having something rather appalling when heard for the first time at night; and he remarks, that as they usually come in packs, the first shriek which is uttered is always the signal for a general chorus. "We hardly know," continues the Captain, "a sound which partakes less of harmony than that which is at present in question; and indeed the sudden burst of the answering long-protracted scream, succeeding immediately to the opening note, is scarcely less impressive than the roll of the thunder-clap immediately after a flash of lightning. The effect of this music is very much increased when the first note is heard in the distance (a circumstance which often occurs), and the answering yells burst out for several points at once, within a few yards or feet of the place where the auditors are sleeping. These animals are said to devour the dead on the battle-field and to scratch away the earth from the shallow graves in order to feed on the corpses.

John Hunter (Phil. Trans.) has recorded the case of a female Jackal which whelped in this country. The period of gestation was about the same as that of the dog, and the whelps were blind at first.

The story of the Jackal being the lion's provider may have arisen from the notion that the yell of the pack gives notice to the lion that prey is on foot, or from the Jackal's being seen to feed on the remnants of the lion's quarry.

Cuvier observes that it is not certain that all the Jackals are similar ('of the same species'); those of Senegal, for example (Comis Anthus, F. Cuv.), he remarks, stand higher on the legs, and appear to have the muzzle sharper and the tail rather longer.

The offensive colour of the Jackal has been given as one of the reasons against reducing it to a state of domestication. We do not see what advantage is to be derived from such a process; but, if it were desirable, that objection, it seems, would not hold. Colonel Sykes, who notices it as the Kholah of the Maharrats, and as being numerous in Dakhun (Derenn), had in his possession at the same time a very large wild male and a domesticated female. The colour of the wild animal was almost unbearable; that of the domesticated Jackal was scarcely perceptible.

Some are of opinion that the three hundred foxes between whose tails Samson is said to have put firebrands in order that they might set fire to the city of the Philistines (Judges, xv., 4, 5) were Jackals. Many of the modern Oriental names for the last-mentioned animals, Chical of the Turks, Scigal, Sciggal, Scialch, or Shocal of the Persians, come very near to the Hebrew word יִבְשָׁר, Shbal. Harris, following the authority of Comis, says, the Jackass, Chical of the Turks," says (translation), "there are greater numbers of this species of Fox to be met with than the former (Comis Vulpes), particularly near Jaffa, about Gaza, and in Galilee. I leave others to determine which of these is the Fox of Scripture, or whether there is any one animal. This does not seem however to be quite certain, for there are not wanting those—and Dr. Konnietz is one of them—who reject all quadrupedal aid as ancillary to the vengeance of

him of Zorah. Dr. Kennicott alludes to the remark that the Hebrew word translated 'foxes' signifies also handfuls (Exek. xiii. 19, 'handfuls of barley'), if the letter j, which has been inserted or omitted elsewhere almost at pleasure, be left out. 'No less than seven Hebrew MSS. want that letter here,' says Dr. Kennicott in continuation, 'and read in the margin, 'Seven handfulls of foxes' (the three hundred handfuls or (sheaves) of corn, and one hundred and fifty firebrands; that he turned the sheaves end to end, and put a firebrand between the two ends in the midst; and then, setting the brands on fire, sent the fire into the wilderness by the hand of his servants.' Our limits will not suffer us to dwell upon this subject, which the reader will find elaborately discussed by Dr. Harris and others.

JACKDAW, the well-known English name for Corvus Monedula, or Corvus Monedula (Merganixo).

JACKSON, WILLIAM, who alone is most sufficient to refute the opinion too generally entertained, even in this country, that the English have no school of music, was born in 1730, at Exeter, of which place his father was a highly respectable tradesman. He there received a liberal education, and having evinced distinct proofs of musical genius, was placed under the tuition of the organist of the cathedral. He thus prepared himself to continue his professional studies in London, under the celebrated Travers, of the Chapel-Royal. He returned to and settled in his native city, and in 1777 was appointed sub-chamber, organist, lay-vicar, and master of the choristers of the cathedral.

Jackson first made himself known as a composer by the publication of Twelve Songs, which immediately spread his fame throughout the kingdom. His next work was Sir Sonatas for the Harpsichord; but this proved unsuccessful. His power was now mainly exerted as a vocalist, in giving expression to good lyric poetry, of which he always made a judicious choice, for he was too sensible a man to waste his strength in such nonsense-verses as are commonly set by the number of common-composers of the present day. His third work, Six Sonnets for Three Voices, all of them more or less ingenious and pleasing, were once the delight of every musical circle. Of these, 'Time has thinned my flowing hair' has lost none of its charms; and 'Love in thine eyes for ever plays' is a duct familiarly known to most, if not all, persons of taste in the British isles. Of his three dramatic compositions The Lord of the Manor alone survives. The unexpectedly tender air in this, 'Eunomias a bride in an angel's frame,' is one among the many admirable things in the opera; the words by General Burgoyne, who in a preface to the drama pays an exceedingly elegiac and deserved compliment to the composer, viewing him both as a musician and as a man.

'Originality and grace are the attributes of Jackson of Exeter; there is in his works a total absence of those phrases—cant phrases they may be called—which, though fashionable and admired at the time, soon became vulgar and distasteful. He wrote not only for his own age, but for future generations. He had already admitted into the list of classical English composers, and will hereafter, when the 'venerable garb of antiquity' is thrown over him, be better known and more esteemed than at the present period; though even now all real judges of musical excellence justly appreciate his best productions. He was described by his professional contemporaries, because superior to most of them in the point of knowledge, and infinitely beyond them in education and in those attainments which become a gentleman. He was a critic too, and as such as well as said excellent things. His mind was of large calibre, and he was powerful and of the best taste in his judgment, and the originality of his conceptions. From those volumes music not wholly excluded, though it occupies only a small portion of
them. But what he has written on the subject is much to the point, his criticism is just, and he has expressed his opinions in appropriate language. (Supplement to Mutilated Literary.)

This was no mean proficient in the sister art of painting; he chiefly employed his pencil in landscapes, making his friend Gainsborough his model; and it has been said, with some reason, that he was the earliest painter of a romantic character, and he denied the possibility of certainty in human knowledge. He maintained that all demonstrative systems must necessarily lead to fatalism, which however is irreconcilable with man's consciousness of the freedom of his rational nature, and ultimately of himself, and man himself, so far as he is a part of that system, is pure mechanism; but in man there is unquestionably an energy which transcends and is superior to sense, or that faculty by which is bound by virtue and regulated by reason.

This higher energy is liberty, or reason, and consequently sense and reason distinguish to man two distinct spheres of his activity—the sensible or visible world, and the invisible or intelligible. The existence of these worlds no more admits of a synthesis than of a separation of their parts. Now sense and reason are the supreme and ultimate principles of all intellectual operations, and as such legitimate them, while they themselves do not receive their legitimization from aught else; and the existence of sense and reason necessarily implies the existence of sensible and intelligible objects about which they are conversant. But this existing system of things cannot have originally proceeded either from nature or from man's intellect or reason, and yet it is the one human mind and reason, and there must be something infinite and unconditioned, superior to and independent both of nature and man, to be the source and principle of all things. This being is God. Now as man's liberty consists in his per- sonality, and his earliest publication was a philosophical poem, entitled 'Friendship and Love,' which first appeared in 1777, but was republished two years afterwards under the simpler title of 'Woldemar.' In this year Jacobi commenced his career, however all the circumstances of his situation he evinced the honesty and independence of his character by exposing publicly the injurious tendency and imprudence of the Bavarian system of finance. In 1781 he commenced an able controversy with Mendelssohn, by his work 'On the Doctrine of Spinoza,' which he further prosecuted, in his Observations on Mendelssohn's Apology for the Doctrine of Spinoza. By the essay, entitled 'David Hume, or Idealism and Realism,' he provoked the hostility of the followers of Kant, and that of the admirers of Hume. He defended his position however, as well as that of most of his controversial opponents, he secured by the known sincerity of his character and opinions. When the troubles arising out of the French Revolution first compelled him to leave Germany, he left Wandsbeck, and removed successively to Warsaw and Hamburg; from the latter he was called, in 1804, to Munich, to assist in the formation of the new Academy of Sciences, of which he was appointed president, in 1807. This dignity Jacobin resigned upon attaining his 76th year, but was allowed to retain the salary and emoluments. Shortly previously his work 'On Divine Things and on Revelation' (Leipzig, 1811) had involved him in a bitter controversy with Schelling, who, in his answer, bore the title 'Memorial to the Work on Divine Things,' proceeded to give the real position of Jacobin with respect to science and theos, or in other words, to philosophy and religion, and generally to literature. Notwithstanding the unfavourable estimate which it attracted, the literary and philosophical merits of Jacobin, he still maintains a high rank among sincere and honest inquirers after truth; and even if, exclusively occupied with detached speculations, he rather prepared than established a system of philosophy, the profundity and originality, which he has furnished materials of which more systematic minds have not scurped to avail themselves for the construction of their own theories.

As a poet, in which capacity he was greatly inferior to his brother (John George), Jacobin was a reflective rather than an imaginative thinker. His poetical merits are chiefly confined to vividness of description and to boldness of style. His philosophical writings, notwithstanding the want of all scientific method, are remarkable for the beauty of the expression, which is conveyed in a form at once vigorous and harmonious. His views of philosophy, as far as they can be gathered from his scattered and occasional compositions on the subject, were of a sceptical and metaphysical character, and he denied the possibility of certainty in human knowledge. He maintained that all demonstrative systems must necessarily lead to fatalism, which however is irreconcilable with man's consciousness of the freedom of his rational nature, and ultimately of himself, and man himself, so far as he is a part of that system, is pure mechanism; but in man there is unquestionably an energy which transcends and is superior to sense, or that faculty by which is bound by virtue and regulated by reason.

This higher energy is liberty, or reason, and consequently sense and reason distinguish to man two distinct spheres of his activity—the sensible or visible world, and the invisible or intelligible. The existence of these worlds no more admits of a synthesis than of a separation of their parts. Now sense and reason are the supreme and ultimate principles of all intellectual operations, and as such legitimate them, while they themselves do not receive their legitimization from aught else; and the existence of sense and reason necessarily implies the existence of sensible and intelligible objects about which they are conversant. But this existing system of things cannot have originally proceeded either from nature or from man's intellect or reason, and yet it is the one human mind and reason, and there must be something infinite and unconditioned, superior to and independent both of nature and man, to be the source and principle of all things. This being is God. Now as man's liberty consists in his person-
the measures of the reign of terror, originated with the club of the Jacobins. [COMMITTEE OF PUBLIC SAFETY.] The club had affiliations all over France. After the fall of Robespierre in July, 1794, the convention passed a resolution forbidding all popular assemblies without interfering with the deliberations of the legislature. The Jacobins however having attempted an insurrection in November, 1794, in order to save one of their members, Carrier, who had been condemned to death for his atrocities at Nantes, the convention ordered the club to be shut up; and Legendre, one of its former members, proceeded with an armed force to dissolve the meeting, and closed the hall. The spirit of the club however survived in its numerous adherents, and continued long after the law against the Legislative Directory, until Bonaparte put an end to all faction, and restored order in France. The name of Jacobin has since continued to be used, though often improperly applied, like other party names, to denote men of extreme democratic principles, who wish for the substitution of monarchy, and all social distinctions, and are not over-scrupulous about the means of effecting their object.

JACOBITES. [EUTYCHIANS.]

JADE, a name which has been given to several minerals which resemble each other but little, except in colour, and therefore it is one which it would be well should fall into disuse.

Serpentine, nephrite, and Sausurite have all been described as varieties of jade. Yu, or Chinese jade, is supposed to be prehnite.

JAEN, an intendencia, or administrative province, of Spain, once a Moorish kingdom, is included in the geographical division of the Peninsula called ANDALUSIA. The province is situated in the southern part of the upper basin of the Guadalquivir, and of the numerous streams which contribute to the formation of that river, and it lies between the Sierra Morena on the north, which divides it from Cadiz, the great southern range or Sierra Nevada on the south towards Granada, and the Sierra de Cazorla on the east, which forms the connecting link between the other two, on the borders of Murcia. To the west the ground slopes with the course of the Guadalquivir towards the Mediterranean, and the numerous streams enter and cross the territory of Jaen; such are the Sierra de Bedmar, Sierra de Ubeda, &c. The province of Jaen is 75 miles from east to west, and nearly as much from north to south, and its area is estimated at about 4000 square miles, with a population of 277,000 inhabitants, distributed among 72 pueblos or communes. The province is divided into five partidos or districts, Jaen, Andujar, Baza, Mar, and Ubeda. The soil in the valleys is extremely fertile, and is perfectly cultivated. Oats, wine, oil, corn, vegetables and fruits of every kind, honey and silk are also gathered. The mountains abound with rich pastures; sheep and a fine breed of horses are the principal cattle in the country. Jaen, the capital of the province, is a city, with 19,000 inhabitants. At Carrija, south of Jaen, are mines of lead and silver, and veins of copper are found in various parts of the province. In the northern part, at the foot of the Sierra Morena, is the German colony of La Carolina, founded by the philanthropists Olivares, in 1677. (Milano; Bowles; Ponc; Bourgoing.)


JAFFA. [SYRIA.]

JAFFNA, the principal town of the province of Jaffna in the island of Ceylon, is situated in 9° 47' N. lat. and 80° 9' E. long. 215 miles north from Colombo, and 296 south-west from Madras. It possesses a large fort built in the form of a pentagon, with five bastions, furnished with a battery of 12 guns, besides an extensive redoubt, and having given it its walls a church in the form of a Greek cross, a com- mendant's house, and some other good buildings, besides barracks and accommodations for soldiers. The town stands to the west of the extensively cultivated Sambuddunills and the canals intersected by several broad parallel streets intersected by smaller ones. The houses are for the most part built with brick. The majority of the inhabitants of the town formerly consisted of the Dutch and their descendants, but since the British commenced the emigration to different parts of the island, and some have gone to Batavia. The bazaar is abundantly supplied with the necessaries of life at a cheap rate. In the neighbourhood there is a church belonging to the Tamul Protestants, called St. John's, in which the Tamul colonial chaplain of the district officiates. The Hindus have a large temple in the neighbouring town of Wannapany, which far exceeds in grandeur all the rest in the province. It is ornamented with an accumulation of small towers, and enclosed by a wall having a large gateway. It was founded and endowed by one Wty Linga Chetty, about forty years ago. There is a band of dancing girls attached to the temple, who entertain the processions with their dances.

Jaffnapatam is not accessible to vessels of any considerable size, owing to the shallowness of the water. The cargoes of the larger vessels are unloaded at Kallal, and conveyed thence by small boats to Jaffnapatam.

Jaffnapatam is the seat of a government agent, who is deputy fiscal, and of a provincial judge, who are gentlemen of the civil service. They research a minor court, to decide on appeals from the courts of the subordinate magistrates of the province of Jaffna.

JAGANATH. [JUGERNATH.]

JAGER. [ORNITHOLOGY.] [LARDÉE.]

JAGUAR. [LEOPARDS.]

JAINAS, a religious sect of the Hindus. The name is derived from the Sanskrit jina, 'victorious,' which is the generic name of the deified saints of this sect.

The Jainas are very numerous in the southern and western provinces of Hindustan; they are principally engaged in commerce, and from their wealth and influence form a very important division of the population of the country. The history and opinions of this sect are also interesting from their striking similarity to the chief peculiarities of the religion of Buddha. The earliest information concerning this sect is contained in the Mahâbhârata, a work of ancient origin, perhaps composed originally in an 'Account of the Jains, collected from a priest of this sect, at Mudgeri, translated by Major Mackenzie;' in 'Particulars of the Jainas,' by Dr Buchanan; and in 'Observations on the Number and Extent of the Jains,' by Dr. Hamilton. The particulars concerning them are also given in Buchanan's 'Journey from Madras through Mysore,' &c.; Wilkes' 'Historical Sketch of the South of India;' in the work of the Abbé du Bois; and in Ward's 'View of the History, Religion, and Manners of the Jains.' The numbers of the Jainas are more important in the 1st volume of the 'Transactions of the Royal Asiatic Society;' by Colebrooke, 'On the Philosophy of the Hindus;' by Major Delamain, 'On the Srdwaks, or Jainas;' by Colebrooke, Dr. Hamilton, and C. Franklin, 'On Inscriptions in Jain Temples in Behar;' by Dr. Hamilton, 'On the Srdwaks, or Jainas;' and also in the 2nd volume of the Transactions, by Major Todd, 'On the Religious Establishments in Mewar. But the most complete and accurate is given in Petrow's 'Sketch of the Religious Sects of the Hindus.' (At Res., vol. xvi.)

A view of the literature of the Jains is given by Wilson in his 'Descriptive Catalogue of the MSS.,' &c., of C. Wilkins, 'An Essay on the History of the Jainas;' and of other works which are principally devoted to the history of the Tirthankaras, or deified teachers of the sect. The chief Purânas are supposed to have been written by Jina Seina Acharya, who was probably the spiritual preceptor of Amoghabhara, king of Kacchi, at the end of the ninth century of the Christian era. They have also their own works on astronomy, astrology, medicine, the mathematical sciences, and the form and disposition of the universe, which a list is given in Wilson's 'Descriptive Catalogue.' 'But the list there given is very far from including the whole of Jain literature, or even a considerable proportion. The books there alluded to are in fact confined to Southern India, and are written in Sanskrit or the dialects of the peninsula; but every province of the landscape can produce Jain compositions, either in Sanskrit or its vernacular idiom; whilst many of the books, and especially those that may be regarded as their Scriptural authorities, are written in the Prakrit or Magadhi, a dialect which, in its earliest form, seems to have been the popular language of the appropriate vehicle of their sacred literature.' (Wilson, At Res., vol. xvi., p. 242-3.) The Jainas are also said to have a number of works entitled Siddhanandas and Agamas, which denote them what the Vedas are to the Brahmanical Hindus.

The Jainas are considered by the Brahmans to form no part of the Hindu church. The principal points of difference between them and the Brahmanical Hindus are—
The Yatis dispense with acts of devotion at their pleasure; and the Śrīvākas are only bound to visit a temple every twenty years, where some of the images of the gods are erected, and make a trifling offering of fruit and flowers accompanied by a short prayer. The Jaina temples are generally superior in size and beauty to those which belong to the Brahmanical religion. Bishop Heber (Journal, L. p. 292) says, "It is a great glory to the worshipper, and a source of satisfaction to all who visit the temples, from which strangers are usually excluded with jealously precautions. The priest led us; he says, "into a succession of six small rooms, with an altar at the end of each, not unlike those in Roman Catholic chapels, with a little niche in each, in which an image of the sect, with a brown robe and nothing else, appears fronting an image of the Śrīvāka, from which an image of the sect, and make a trifling offering of fruit and flowers accompanied by a short prayer."

The moral code of the Jaina is expressed in five Maharatas, or great duties: 1st, refraining from injury to living beings; 2nd, truth; 3rd, charity, including sacrifices; 4th, the respect paid to the ancient, and 5th, from worldly desires. There are also four Dharmas, or merits: liberality, gentleness, piety, and penance.

JALAP. [Convolvulus Jalapa]
JALAPA. [Mexico]
JALISCO. [Mexico]
JALLOFFS, or YALLOFFS, are a negro tribe who occupy a considerable tract of country between the rivers Senegal and Gambia. They are considered as the finest of all the negroes in this part of Africa. They are tall and well made, their features are regular, and their physiognomy open. Though bordering on the Foulahs and Mandings they differ from both, not only in language, but in features. The noses of the Jalloffs are not so much depressed nor the lips so protuberant as among the generality of Africans, but their skin is of the deepest black. They are chiefly employed in agriculture, and have made some progress in the useful arts, especially in the manufacture of cotton cloth, which they make better than any of the neighbouring tribes. Though Mohammedans, they may be regarded as belonging to the same stock as the Arabs, and many of the Arabs have intermarried with them. They have a considerable number of black slaves, and are divided into several independent sects, which are frequently at war, one to the other, or with any one else. (Mungo Park's First Travels into the Interior of Africa; Goberry's Fragments.)

JAMAICA, one of the Greater Antilles, and the most important possession of the British in the West Indies, extends from 77° 15' to 78° 22' W. long., and from 17° 40' to 18° 30' N. lat. Its length from east to west is nearly 150 miles, and its width may on an average be 40 miles. It contains, according to Mr. Robertson's survey, 2,724,262 acres, or 2,656 square miles, and is much less in extent than the country of York. One, 1,100,000 acres are stated to be under cultivation.

The surface of this island is very uneven, and the tracts which are level probably occupy less than one-twentieth of the whole. It has many lakes, but it is only the eastern plain that is called mountainous. This part is almost entirely filled up by the Blue Mountains, whose principal ridge occupies the middle of it, and runs nearly east and west. This range varies from 2000 to 6000 feet in elevation; its summit is in some places not to be passed over, and the sides decline 2000 to 3000 feet, or 2500 yards across. Its numerous offshoots run south and south-east, or north and north-west. On one of the latter offshoots rise three peaks, of which the most northern and the highest is 7150 feet, above the sea. At the boundary of this mountain-region is formed by a ridge, running across the whole island from south-east to north-west. This ridge bends on the south at the outlet of the Tana, and terminates to the north-east of the mouth of the Agra Alba, or Wagwater river. It rises to a considerable height, frequently to 2000 and 3000 feet; and S. Catherine's Peak,

In the centre of each room was a large altar, which contained, the first five, the last in succession two, five figures, all men sitting cross-legged, one considerably larger than the rest, and represented as a negro. He, the priest said, was their grand father, the rest were the different species he had assumed at different epochs, when he had become incarnate to instruct mankind. The doctrines he had delivered on these occasions make up their theology, and the progress of their religious mysteries entitles him to worship in one or more of the successive apartments which were shown us.

The Jaina are also divided into Yatis and Śrīvākas, and they are the descendants of the Yatis, the former of whom subsist upon the alms of the latter. The religious ritual of the Jaina is very sum-
at the point where it is united to the range of the Blue Mountains, is 4500 feet above the sea-level. The declivities of the rather steep, bare, and steeply covered with woods, but the level summits are generally overgrown with trees. The valleys are mostly narrow, and contain but little level ground, with the exception of the vale of Bath, which extends about eight miles from the town of that name to the mouth of the St. Elizabeth river. This vale, the promontory of Morant Point, the most eastern cape of the island. This vale is about one mile and a half wide, and covered with sugar plantations.

West of the range in which S. Catherine's Peak stands, the range, and hills are divided from those farther west by a depression which extends across the island over the plain of Liguanea and the hill country which encloses the banks of the Wagwater river. Yet north of the plain the elevation of the sea-level remains nearly so. The greatest plain in the island is that of Liguanea, which begins a few miles east of Kingston, and extends westward to a point of Old Harbour, a distance of about thirty miles: its average breadth is about five miles. The western portion of this plain has a considerable inclination. It is defended from the sea by the Palisadoes, a sand-bank several miles in length, which joins the town of Port Royal to the mainland of the island. A part of this plain consists of savannahs, or natural pasture-ground, covered with grass. The west of Port Henderson a range of low hills called Heathcote Hills lie between the plain and the sea.

The plain of Liguanea divides from the plain of Vere by a range of low hills which approach the west of Old Harbour, near Salt River Bay. The plain of Vere extends from south-east to north-west about 18 miles, with an average breadth of 7 or 8 miles. On the south-east of this plain is the Portland Ridge, which terminates in Portland Point, the most southern cape of Jamaica. On the north-west it is joined by the Mile Gully, a picturesque valley, several miles in length, traversed by the upper course of the Minho river. The soil of the plain of Vere is moderate fertility, and mostly used as pasture-ground.

The mountains which enclose these plains on the north rise with a steep and abrupt ascent, but they do not attain a great elevation, hardly any summits being 3000 feet high, and most of them not 2000 feet. These mountains do not occupy the whole of the country, but enclose valleys of considerable extent and fertility, and the basin of St. Thomas-in-the-Vale, a plain enclosed in hills, about 9 miles long and 9 miles across, which is covered with sugar plantations. The valley, for the most part, the coast the mountains sink down into low and well-wooded hills.

The mountains, which come nearly the whole of the island, west of the plain of St. Thomas-in-the-Vale, do rise much higher than those which enclose the basin. Their mean elevation falls short of 2000 feet, and few of their summits attain more than that elevation. The highest seems to be the Peak near Blenheim, not far from the southern coast, which rises to 2500 feet. Properly speaking, the ridges do not extend in one general line, but intersect each other in various direction, so as to form valleys, which open to nearly every point of the compass. Near the central line of the island, the hills present the characteristics of the limestone formation, of which they consist. Caverns occur in several places, and some of them are very extensive. In the midst of the hills are also cavities and depressions, sometimes of considerable extent. The water, which falls from the higher summits into the cavities during the rains forms small rivers, which flow for a short distance and then disappear in sink-holes, and sometimes come again to the surface and again sink. These districts are only provided with running water during the rains, and the inhabitants are obliged to have recourse to tanks or cisterns, in which they collect the rain-water, for the dry seasons. In the western part of the island the level grounds are not of great extent. The range of the Pedrero Point, near Roseau, and the Savannah La Mar, towards Santin on the north. In the Negapat Point, the most western cape of the island. A considerable portion of these plains is low and covered with swamps. No plains occur on the northern coast. The cuttery between Monteego Bay to the west of the and St. Ann's Bay on the east consists only of low though abrupt and precipitous hills; the valleys between them are covered with high forest-trees, which exhibit a very luxuriant vegetation.

Except the districts which lie within the limestone formation above mentioned, Jamaica has the advantage of being watered by numerous rivers, rivulets, and springs. None of the rivers are navigable, except the Black River, in the vicinity of which is the port of Spanish Town. The rivers in the north-west reach the sea by a short course over sand, and are carried up about 30 miles in flat-bottomed boats and canoes. But the other rivers are of great importance for the water which they supply for the irrigation of the plantations, the numerous mills which they turn, the navigation of canoes, and the water supply they afford to people and animals through which they flow. Some of them form beautiful cascades.

The want of river navigation can hardly be felt in an island like Jamaica, which has a coast-line of more than 500 miles, and extends from 200 to 400 miles into the sea, and whose shores are sufficiently indented to supply it with numerous harbours and other shelters for shipping. There are 30 principal harbours, besides many double that number of bays, creeks, and coves, capable of affording more or less shelter to vessels. The safest and most capacious of the harbours are those of Port Morant, Kingston, and Old Harbour on the southern, and those of Lucia and St. Antonio on the northern shores.

The climate of Jamaica is remarkably hot, but there are many cases in the lower plains along the southern coast. The mean heat of the summer months (from June to November) is about 80°, whilst the mean heat of the other six months does not exceed 75°. In summer the thermometer generally approaches to the 105°, but rarely, to 100°. In winter it sinks to 69°. But the changes of the temperature are very slow and gradual, the difference between noon and midnight rarely exceeding 5° or 6°. The mean heat on the hills, which are 1000 feet and upwards above the sea, in summer is stated to be 73°, and in winter between 65° and 72°, though the thermometer occasionally sinks to 55°, and on the higher mountains even to 48°. Snow has never been observed, even on the most elevated peaks; hail is not rare in the winter season, but bursts on them, and reaches the ground. The climate is cooler and more salubrious on the north side of the island than on the south. The heat of the low coast is considerably diminished by the daly sea-breeze, which sets in generally about nine o'clock in the morning, and ceases only towards sunset. Its salubrious effects are so obvious, that it has obtained from the seamen the name of the doctor. During the hottest part of the day, and in the most sultry months, a succession of light flying clouds continually pass over the sun, and, by intercepting his rays, cool the air. The temperature is, however, high near the coast.

In Jamaica there are two rainy and two dry seasons. The spring rains begin some time after the sun has passed the equator, in the middle of April or beginning of May. The fall of rain is not heavy, and goes on for some time. It comes down only in showers: the dry weather frequently continues to the month of June, especially on the southern side of the island. The heavy rains commence in June or even later, and last about two months; they are by far the most violent of all that occur during the year, and the time the air is most intolerably sultry. This intense heat, joined to a still breathless atmosphere, is a presage of the approaching torrents. The clounds hastily gather, and form into a compact mass, overspreading the sky, which just before is cloudless and serene. A tremendous peal of thunder bursts from these dark clouds, and in a few minutes the rain descends in torrents, of which no one can form an idea who has not witnessed them. During the continuance of the heavy torrents, the rain falls in thick drops, and bursts with thunder and quick and vivid flashes of lightning. These rains set in regularly every day, and continue from two to three hours, sometimes for the space of several weeks. Sometimes very heavy rain descends for several days and nights without any intermission. The torrential or fallow rain as they are called by the planters, come in October and November: they are by no means so heavy as those of the spring, nor are they usually accompanied with thunder and lightning, but they are often attended with heavy gusts of wind, and great violence of the sea, which are often more frequent, and more heavy than in the low country.

Jamaica is from time to time visited by those terrible phenomena called hurricanes. They generally set in from the north north-west, but only in the summer months between the two rainy seasons, which months are therefore called
the hurricane months in the West Indies. They are usually succeeded by long droughts, by which those crops which are spared by the tempest are arrested in their growth, and a famine is the consequence. But hurricanes occur less frequently in Jamaica than in the Lesser Antilles.

The low tracts along the coast are unhealthy, but the hilly and mountainous country is much less so. The most common diseases are the yellow fever, common bilious fever, dysentery, the small and large pox, malaria, the sable and red fever, and the itch, especially to new comers, who are not yet inured to the climate.

The staple articles of the island occupy the greatest portion of the time and industry of the agriculturists, but hides and wool are the most valuable products. Corn, sugar, tobacco, hides, and wool are exported in considerable quantities. The population is estimated at about 800,000 persons. The principal crops are rice, sugar, tobacco, potatoes, beans, yams, sweet potatoes, and maize. The sugar islands of the West Indies are most remarkable for the perfection and quantity of their production. The principal sugar districts are in the district of St. Ann's, St. Andrew, St. Mary, St. Thomas in the Vale, St. James, St. Philip, and St. Nicholas. The greatest part of the produce of the island is brought to these districts. The largest part of the population is engaged in the production of sugar.

The greatest part of the island is occupied by the high mountains, which are divided into three main ranges, running parallel with each other, and connected by broad and elevated plains. The most southern range is that of the Blue Mountains, which are the highest and most inaccessible of the island. The second range is the St. Ann's Mountains, which are much lower and less inaccessible. The third range is the St. Mary's Mountains, which are the lowest and most accessible. The greatest part of the island is covered with forests, which are inhabited by the negroes, who are the chief inhabitants of the island. The greatest part of the island is covered with forests, which are inhabited by the negroes, who are the chief inhabitants of the island.
assize courts are held here. The harbour is exposed to a
heavy swell, which sets in during the prevalence of the north
winds; but a breakwater has been erected as a protection
against the sea. Fifty years ago Falmouth was an in
considerable village, but it is now nearly as large and populous
as Montego Bay, and carries on a considerable commerce.

The population of Jamaica is from 201,000 to be less than
400,000 souls; but it cannot be exactly ascertained, as no
complete census has ever been taken. In 1834 there were
297,186 negro slaves, all of whom have been made free in
this present year (1838), by separate acts of the legislatures
of Great Britain and of Jamaica.

The Maroons were originally runaway slaves, partly from
Jamaica itself, partly from Cuba, who lived in the forests
on the northern side of the island. In 1738 a tract of land
was granted to them in those parts, which they cultivated
and on which they built two small towns, and though a por-
tion of them forfeited their privileges by a rebellion, others
have preserved them to this day. The other inhabitants
are either whites or people of colour. The whites are either
civilians of Great Britain or descendants of Europeans, and
probably amount to about 30,000 individuals. The people of
colour, of whom there are perhaps 40,000, are the offspring
of Europeans and negroes. The negroes, divided into
mulattoes, the offspring of a white and a black; sambous,
the offspring of a black and a mulatto; quadrados, the
offspring of a white and a mulatto; and mestees, the offspring
of a white and a negro. No traces of the native population
of the island existed when it was taken by the English
from the Spaniards.

The people are occupied either in agriculture or in trade.
The following tables show the share which every town has
in the trade of the island, and the imports and exports, and
their value in sterling money for the year 1834.

1. Number, Tonnage, and Crews of Vessels which entered into the Harbours of Jamaica in 1834.

<table>
<thead>
<tr>
<th>Ports</th>
<th>British Colonies</th>
<th>United States</th>
<th>Foreign States</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kingston</td>
<td>109 30,437</td>
<td>81 10,480</td>
<td>8 13,754</td>
<td>143 30,991</td>
</tr>
<tr>
<td>Antonio</td>
<td>8 2,318</td>
<td>3 337</td>
<td>1 109</td>
<td>12 2,764</td>
</tr>
<tr>
<td>Montego Bay</td>
<td>26 7,951</td>
<td>24 3,577</td>
<td>25 3,843</td>
<td>51 1,993</td>
</tr>
<tr>
<td>Montau Bay</td>
<td>26 8,757</td>
<td>7 1,137</td>
<td>2 232</td>
<td>31 1,569</td>
</tr>
<tr>
<td>Montau Bay</td>
<td>17 3,237</td>
<td>2 252</td>
<td>2 228</td>
<td>18 3,700</td>
</tr>
<tr>
<td>Maria</td>
<td>8 2,553</td>
<td>2 562</td>
<td>1 128</td>
<td>10 3,242</td>
</tr>
<tr>
<td>St. Ann's Bay</td>
<td>3 668</td>
<td>8 196</td>
<td>1 189</td>
<td>3 964</td>
</tr>
<tr>
<td>Black River</td>
<td>9 1,633</td>
<td>89 3,576</td>
<td>10 3,242</td>
<td>3 964</td>
</tr>
<tr>
<td>Falmouth</td>
<td>661 5,323</td>
<td>26 1,428</td>
<td>14 1,357</td>
<td>96 5,802</td>
</tr>
<tr>
<td>Savanna la</td>
<td>11 3,841</td>
<td>8 467</td>
<td>4 189</td>
<td>15 4,597</td>
</tr>
<tr>
<td>Mar</td>
<td></td>
<td>3 438</td>
<td>1 125</td>
<td>3 563</td>
</tr>
<tr>
<td>Total</td>
<td>236 79,944</td>
<td>113 18,318</td>
<td>135 21,655</td>
<td>700 127,521</td>
</tr>
</tbody>
</table>

2. Number, Tonnage, and Crews of Vessels cleared at the Ports of Jamaica in 1834.

<table>
<thead>
<tr>
<th>Ports</th>
<th>British Colonies</th>
<th>United States</th>
<th>Foreign States</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kingston</td>
<td>72 21,184</td>
<td>67 8,326</td>
<td>47 7,544</td>
<td>191 29,227</td>
</tr>
<tr>
<td>Antonio</td>
<td>6 1,545</td>
<td>6 695</td>
<td>1 109</td>
<td>13 2,340</td>
</tr>
<tr>
<td>Montego Bay</td>
<td>31 9,590</td>
<td>21 2,714</td>
<td>20 2,785</td>
<td>53 4,090</td>
</tr>
<tr>
<td>Montau Bay</td>
<td>21 6,379</td>
<td>4 489</td>
<td>1 98</td>
<td>27 7,366</td>
</tr>
<tr>
<td>Montau Bay</td>
<td>17 5,534</td>
<td>8 429</td>
<td>1 129</td>
<td>16 6,082</td>
</tr>
<tr>
<td>Maria</td>
<td>19 5,034</td>
<td>10 539</td>
<td>1 271</td>
<td>30 5,834</td>
</tr>
<tr>
<td>St. Ann's Bay</td>
<td>10 2,357</td>
<td>8 196</td>
<td>1 189</td>
<td>19 5,642</td>
</tr>
<tr>
<td>Black River</td>
<td>27 7,606</td>
<td>1 104</td>
<td>2 221</td>
<td>28 8,032</td>
</tr>
<tr>
<td>Falmouth</td>
<td>33 10,462</td>
<td>16 1,618</td>
<td>13 1,825</td>
<td>62 13,902</td>
</tr>
<tr>
<td>Lucia</td>
<td>14 5,273</td>
<td>4 699</td>
<td>4 583</td>
<td>22 6,549</td>
</tr>
<tr>
<td>Savanna la</td>
<td>8 2,757</td>
<td>7 717</td>
<td>3 477</td>
<td>16 3,931</td>
</tr>
<tr>
<td>Mar</td>
<td></td>
<td>5 717</td>
<td>3 477</td>
<td>8 1,105</td>
</tr>
<tr>
<td>Total</td>
<td>258 78,014</td>
<td>124 15,362</td>
<td>92 13,771</td>
<td>718 131,489</td>
</tr>
</tbody>
</table>

The imports into Jamaica in the year 1834 amounted to
1,589,720L. Some of the largest articles in amount were
apparel and slops, beef and pork, butter, grain and flour,
cotton articles, salted fish, glass, hardware and cutlery,
iron, wrought and unwrought, hats, leather, linen articles,
soap, stationery of all sorts, wine, wood and lumber, and
woollen articles. The value of books imported was only
375L. The exports from Jamaica during the year 1834
amounted to 3,148,797L. The chief articles were arrowroot,
cotton, and foreign cotton manufactures, dye and hard
woods both of the growth of the island and imported, gin-
ger, iron and steel manufactured articles, linens, molasses,
pimento, sarsaparilla, spirits, rum and shrub, sugar colonial
and foreign, tobacco unmanufactured, tortoise-shell, and wood
leather.

Towards the end of the last century and in the beginning of
the present Jamaica was the entrepôt of the immense
quantity of European merchandise which was destined for
consumption on the Spanish Main and the Spanish islands,
and though at present a free intercourse between these
countries and Europe exists, yet a considerable quantity of
British manufactures is still sent to Jamaica, and thence to
Mexico, Central America, New Granada, and Venezuela.
Dye and hard woods, indigo, and other articles are sent in
return to Jamaica. The commodities from Jamaica to the United States
also carry on a considerable trade with this colony, which
they furnish with lumber and provisions, taking in return
rum and molasses. But by far the most important com-
merce of Jamaica is that with the mother-country. The
time when the ships arrive from Great Britain is from
October to May, and they continue to depart as they get
freighted, from April to the first day of August, after which
day, and until the hurricane months are over, ships and
their cargoes sailing for Great Britain pay double insurance.

Jamaica was discovered by Christopher Columbus on his
second voyage, the 3rd of May, 1494, but was not settled by
the Spaniards before 1510. In 1655 it was taken from the
Spaniards by the English, who for some time did not ap-
predate its value; at present it may be considered as the most important possession of any European nation in the West Indies. Since 1655 it has remained in the undisputed possession of the British, and its internal peace has only been disturbed by the rebellion of the Maroons in 1795. Though Jamaica has been written by St. James, its present constitution was only completed in 1788. The executive is in the hands of the governor, who, as well as the council, consisting of twelve persons, is appointed by the king, whose authority is in no manner suspended by the Act of Union.

There is a Bishop of Jamaica whose see comprises the Bahamas and Honduras. Besides the clergy of the Established church, who have the care of the several parishes, there are Dutch, Presbyterian, Wesleyan, Baptist, and Moravian ministers.

Education is in a low state in the island. Most of the opulent persons send their children to England to be educated. According to an official Report presented to the House of Commons in 1781, the number of children in the schools was 2019; of whom 133 were whites, 1365 were free persons of colour, and 621 slaves. Out of this number of 2019, only 1053 were taught writing and arithmetic in both a reading and scriptural instruction. It must be observed, however, that since died of dysentery had been imported, and also is defective. The Report only comprises 12 parishes out of the 21; and does not include either Kingston or Spanish Town.

The first published works of the West Indies; Stewart's Past and Present State of Jamaica; Jamaica as it was, as it is, and as it may be; De la Beche, in the Geological Transactions, 2nd series, vol. ii.; Tables published by the Board of Trade.

JAMES, SAINT, THE EPISTLE OF, one of the books of the New Testament. There are at least two individuals of the name of James mentioned in the New Testament.

1. James, one of the Apostles, son of Zebedee, and brother of the apostle John (Matt. iv. 21; x. 29; Mark, i. 19, 29; iii. 17; xvi. 3; Luke, v. 10; vi. 14; x. 44; Acts, i. 13), who was chosen with Peter and Andrew to accompany Christ to the Mount of Transfiguration (Luke, viii. 51; Matt. xvii. 1). He was beheaded at Jerusalem by order of Herod Agrippa about A.D. 44 (Acts, xii. 1). He could not have been the author of the epistle; since it bears marks of having been written at a later period.

2. James the Less, as he is called in Mark, xv. 40, the son of Alpheaus and Mary (Matt. x. 3; xxvii. 56; Mark, xv. 40; Luke, xxi. 14; Acts, x. 19; xim. 18; Luke, vi. 15; Acts, i. 13).

There is also mentioned in the New Testament a James, a brother of Jesus (Matt. xii. 49; Mark, vi. 3); who according to Josephus (Antiq. x. 5, § 1) was put to death by the high-priest Ananus about A.D. 62 or 63. He was probably the same individual as the James who appears to have had the greatest influence in the church at Jerusalem (Acts, xvi. 19; xxii. 10; Gal. ii. 12); and who, according to ecclesiastical tradition, was the first bishop of that church. Since James is also mentioned by St. Paul (Gal. i. 19) as one of the apostles, and as the Lord's brother, we meet with three individuals of the name of James who are said to be apostles; which is contrary to the lists of the apostles given in the New Testament. But the perfect contrast to the views generally entertained has also been maintained by most modern divines, that James the son of Alpheaus was the same person as James the brother of our Lord; and that the Greek word ἀδελφός, which is translated 'brother' in our version, is used, like the Hebrew בָּן, in the sense of 'cousin.' The epistle is almost universally attributed to this James by the Fathers and later ecclesiastical writers; it was probably written shortly before his death.

The Epistle is addressed to all the Jewish Christians 'which are scattered abroad' (1: 1); and its principal object is to exhort them to perseverance; to inculcate several precepts of great importance, and especially to explain the doctrine of justification by faith, which many persons appear to have misunderstood.

The canonical authority of this Epistle has been much disputed. Clement of Rome (1 Corinthians x.) and Irenaeus (Heres., iv. 15, § 2) had probably read it; but they do not quote it as of inspired authority. Eusebius places it among the antilegomena, that is, writings which were not generally received, and also mentions several doubts which were entertained against it. Origen speaks of it as the Epistle said to have been written by St. James, and the New Testament received by the church, till the time of the Reformation, when its canonical authority was rejected by Luther and several other reformers on account of the difference, real or apparent, which were alleged to subsist between the writings of St. Paul and those of St. James, in reference to the doctrine of justification by faith. The principal argument in favour of the canonical authority of this Epistle is its forming part of the Peshito, that is, the Syriac version of the New Testament. It is also found at the beginning of the first or the beginning of the second century of the Christian era.

(The Introductions of Eichborn, De Wette, Hug. Michaelis, and Horne; Horden, Briefe zweiter Brüder Jesu, 1774; and the Commentaries of Schultensius (1828), Gessner (1828), Schneckenburger (1832), and Theile (1833).)

JAMES I., King of Scotland, was a younger son of King Robert III., who, hearing of the licentious conduct of his son, David prince of Scotland, directed Robert duke of Albany, the boy's uncle, to seize him and keep him a prisoner till he promised amendment. This foolish order was readily obeyed by Albany, who wished nothing better than an opportunity to usurp the throne; and in a short time the young prince was beheaded as it was said, for disorder in his conduct, and for being under the influence of his mother. The king now began to fear Albany; and accordingly had his remaining son James secretly put on board a vessel for France. He did not escape however; for Albany, being provoked by him, attacked Scotland by an English ship of war, and the prince carried prisoner to London. His weak old father was so affected by the news that in a few hours after he died of a broken heart. The duke of Albany was thereupon made Regent of the kingdom.

James, now in the 13th year of his age, was on the 14th April 1405, conducted to the Tower, where he was detained till the 19th June, 1407, when he was removed to the castle of Nottingham. He was carried back to the Tower again on the 1st March 1414; but a few months afterwards he was taken to Windsor, where he remained till the summer of 1417, when King Henry V. took him with him on his second expedition to France. The Duke of Albany died in 1419, and from that time measures began seriously to be taken for his release. During all this period James was receiving the best education which could be procured. He became familiar with sights of regal pomp and power, and with the manners and customs of the English court, at a time when there was much to interest the youthful mind: his habits were active, his conduct prompt and resolute, and at his return to his native kingdom he was in the spring and vigour of his life. He was long afterwards remembered in Italy as the inventor of a plasitive sort of melody, which had been admired and imitated in that country: he was one of the best harpers of his time, and excelled all the Irish and Scotch highlanders in their use of that instrument; and in the three pieces of his which have come down to our day—Christ's Kirk on the Green, the King's Quhair (or Book), and Peebles at the Pluie—we have no mean specimens of intellectual power and literary skill.

At his accession, in 1424, Scotland was in many respects an impoverished country; it was still the gregate of rival powers than a settled and united kingdom. There were still two Justiciars of co-ordinate authority, one on the north and the other on the south of the Firth; and in the former portion of the realm, which alone was properly denominated by St. James. After this the authoritv still principally lay, there were numerous and powerful clans. The regencies, in the absence of James, had contributed to the national disorder—the two Albaines sacrificing their own ambitions to the just authority of government and the supremacy of the law.

James entered on the administration of his kingdom with a spirit and energy suitable to the high notions of prerogative which he had imbibed. Immediately on his arrival he proceeded against the family and adherents of the late regents, and eventually had several of them condemned and forfeited. All the customs of the realm, great and small, were annexed to the crown; and every valuable mine of...
gold or silver. "A new coinage was struck, of like weight and fineness with the money of England; hospitals were to be kept up throughout the island; idleness and begging were forbidden; the law records of the kingdom (which seem to have been in a state of neglect) were to be inspected and ascertained; and the statutes of parliament were ordered, for the first time, to be regularly enrolled. This was a great work; all however; for in the spirit of King Henry IV's time, which had witnessed some detestable examples of religious persecution, an act was passed anent heretics, that inquisition be taken by every bishop in his diocese, and, 'gift it miseriously, and no other' be called upon to support and aiding church. In his time the chancellor and clergy first got a footing in the administration of the common law. This was in the year 1425, when the chancellor and certain persons of the three estates chosen by the king were empowered, and the Commoners of the County Chancery, to finally determine all complaints, causes, and quarrels competent before the king and his council.

We have already alluded to the king's conduct towards the family and friends of the regent Duke of Albany immediately on his accession to the throne. At a later period of his reign we have another signal instance of the king's energy and promptitude of purpose in his conduct toward the Lord of the Isles. About the year 1427 the Lord of Iona communicated to the King an impression of the danger to Scotland which had, it seems, a commission from the king to apprehend Iola; but, it is added, he exceeded his powers in putting that chiefman to death. The circumstance occasioned great distress throughout the highland and isles, and an act was enacted for the purpose of restoring order, and to enforce the laws in those wild districts, the king summoned a parliament at Inverness, to which the Lord of the Isles and the other highland chiefs were cited to appear. On their arrival, to the number of about forty, they were seized by a stratagem of the king, and committed to prison in separate apartments. The Lord of the Isles and some others were at length liberated; but deeply feeling the indignity he had suffered, the Lord of the Isles, immediately on his return home, gathered together his followers, and set on foot a war against the king, seized all the crown lands near Inverness, and made an attempt also to destroy the town. Information of this inroad being communicated to the king, orders were instantly given to repair to the spot; and leading his troops in person, he succeeded by forced marches in coming up with the rebels in Lochaber, at a time when they least expected such a thing. The consequence was that at length the rebels made an unconditional surrender, and the Lord of the Isles was obliged to abdicate the possession on his bended knees at the court of Holyrood House.

The king's vigour and determination were not a little abominable to the nobles, who saw in it the speedy ruin of their usurped authority. But it is probable that his devotion to the crown was one of the great wounds he received in the exercise of his royal power. They felt humbled, not so much before the sovereign as before the clergy. A conspiracy was accordingly formed against him, under the Duke of Atholl, the king's uncle, and on the 21st February, 1437, the king was murdered, in the 44th year of his age. A year or two afterwards his advisor Wardlaw, bishop of St. Andrew's, died; and immediately on this event Bishop Cameron, Wardlaw's favourite, was turned out of the chancellorship which he had held from the institution of the Court of the Session, and Sir William Crichton, a layman, and the first who had held the great seal for a long period, was constituted chancellor; the Court of Session expired, and the common law was abolished.

JAMES II., King of Scotland, only son of James I., succeeded to the crown when but about seven years old. The rivalry which existed between the nobles and ecclesiastics at his father's death continued; and the one party or the other prevailed only as by violence or stratagem they obtained possession of the king's person. Disorder naturally spread throughout the kingdom, and the power of individuals grew most insolent from neglect to enforce the laws. The Earl of Douglas in particular created a sort of insurrection in the country; and by means of the hostile vassals and dependents to acknowledge any authority save his own, he created knights, appointed a privy-council, named officers, civil and military, and appeared in public with a show of successions of the royal office. To these calamities which the nation suffered, the country was visited by a plague, and there was also a great famine. The king was immature in mind as in years, and altogether deficient in the vigour necessary in his circumstances and situation. He was obliged to receive advice from England, and the whole reign the country was disturbed by intestine broils, and though continual executions and forfeitures took place yet no regular or effectual measure was adopted to obtain or secure peace. The policy of James was to adhere to the style of an independent prince granted a commission to ambassadors to confer with deputies from Edward IV. king of England, with a view to the settlement of the realm. The commissioners met at Westminster, and after a negotiation, concluded a treaty, dated at London, 13th February, 1462, the object of which was no less than the conquest of Scotland by the vessels of the chieftain and the auxiliaries to be furnished by Edward, with such assistance as could be given by the English. But no sooner was the king of Scotland going on in the north, Robert lord Boyd, one of the lords of the regency, and also lord-justiciar south of the Forth, and lord-chamberlain of the kingdom, was grasping in another part of the kingdom, the county of the bishopric and places of government, and it would seem that the minister of the magistrates and common-councillmen in the several burghs were also then objects of tumultuous contest; for it was at this time the act 1469, c. 39, was passed, by which the entire system of burghs was distinctly confirmed and the existence of such confusion. This act was the foundation of the close system, which was only remedied by the late Burgh Reform Act for Scotland. The same year the act 1469, c. 30, was passed, subjecting all notaries to the examination of the chancellor before the execution of their office. This act appeared to please the clergy, who had the ear of the king. The latter indeed appears to have been the known slave of his ecclesiastics, and Sir James Balffour (annals of Scotland, an. 1461), records a trick played off on him by King Edward IV. of England, who trimmed up a person in the habit of a papal legate, and sent him to James with injunctions and excommunications in the name of his Holiness. The impeachment succeeded completely. The king took up his residence in a chateau near the earl of Moray, and placed himself in a quarrel with his nobles, which ended in the encounter at Bannockburn. The king fled in fright from the field, and falling from his horse was karled into a miller's cottage, where, on being discovered, he was secretly killed, and no more was heard of him. The king's death took place in June, 1488, in the 35th year of his age. The king's immaturity in mind made his figure a subject of the accession to the throne, which took place on the 11th June, 1488. He was of an open disposition, full of life and vigour; and in his time the commerce and literature of the country flourished under his encouragement. But though he possessed not a few of the elements of a great mind, he unfortunately became the slave of superstition, and thence in his public conduct a mere tool in the hands of his clergy.

In 1494, having fallen into a state of melancholy on the reflection that he had counterenacted the rebellion in which his father had been concerned, he received sentence in obedience to his wrist an rim bell, to be worn in peaceme, day and night, for the remainder of his life. Sometimes after this his queen fell sick, and immediately the queen he made a pilgrimage to St. Ninian's in Galloway, on foot, for her recovery. She when recovered, they both went thither in pilgrimage the same year. That year also he went to St. Duthin's in Ross—which was to the extreme north of the kingdom, as the Holyroodhouse was to the south, and we cannot hesitate to think it was at the desire of the ecclesiastics, that he made those repeated progresses to the highlands and isles in which we find him engaged, with the ostensible purpose of quieting that part of the realm, but in fact to remove him from the seat of authority and government. In the meantime the clergy were not idle. In the above year, 1494, the
The circumstantial closing of the last struggle in Scotland between the two great interests of the old and the new religion, which besides their intrinsic importance were respectively identified with the French and the English allies, and also with the distribution of the property of the kingdom, made the majority of James stormy beyond even the ordinary use and want of Scottish minorities. Before his mother's marriage with Bothwell he had been committed by her to the care of the earl of Mar, a man of such a character, who had retired with his charge to Stirling Castle, and there resolutely withstand all Bothwell's attempts to obtain possession of the infant prince. Here he continued to reside during the regencies of the earl of Murray (22nd August, 1567.-23rd February, 1568), the earl of Morton (27th January, 1570.-4th September, 1570), the earl of Mar (4th September, 1570.-29th October, 1572), and of the earl of Morton (24th November, 1572.-10th March, 1573), his education being placed under the general direction of Mar's brother, Alexander Erskine, under whom were employed George Buchanan and three others of the most distinguished among the Scottish scholars. After his brother's death not only the custody of the king's person, but the government of the kingdom, also the commonwealth, was committed to Erskine, and principally by his management, in concert with the earls of Argyle and Athol, a plot was arranged in the beginning of the year 1578, the result of which was that young James was at that time the property of England, which met at Stirling, James, young as he still was, was requested to take the government into his own hands, and Morton was compelled to resign the regency at Edinburgh on the 10th of March; to the great joy of the nation, both of whom the authority and rage of his administration had made him universally odious. Affairs were now nominally administered by the king, assisted by a council composed of twelve of the nobility. The new government however soon became unpopular, principally from the proceedings of its local members, the party of popy; and this state of things in a few weeks opened a way for Morton to the resumption of nearly all his former authority. Into the hands of this man, undoubtedly one of the chief actors in the tragedy of his father's murder, the young prince now fell; and Morton succeeded in retaining his prize, notwithstanding all the efforts of the opposite party, till, partly by force, partly by skilful negotiation, he had apparently re-established his authority and complete security. Many however in being undermined, chiefly by the intrigues of two individuals, who seem to have first made their appearance at the Scottish court in the latter part of the year 1579, and immediately became the object of the young prince's hatred. One of these earliest of James's succession of favourites was Esme Stuart, a son of a younger brother of the earl of Lennox, and therefore a near relation of his own: he was a native of France, and born in that country the title of Lord D'Aragagny, to which James rapidly added the Scottish honours of Lord Aberbrothock, earl of Lennox, and then duke of Lennox, with the appointments of governor of Dunbarton Castle, captain of the royal guard, first lord of the bedchamber, and lord high chancellor. The other, a much darker character, was a Captain James Stuart, the second son of Lord Orkintyre. On the 30th of December, 1580, the mind of the king having been previously prepared for what was to be done, Captain Stuart entered the castle, and after some years of Morton having been accessory to the murder of the late king. The earl was immediately committed to prison, and notwithstanding the most strenuous efforts in his behalf by the English queen, he was brought to trial before the court of justice, condemned, and executed at Edinburgh, 22nd June, 1581. The two favourites, Lennox, and Stuart, recently created earl of Arran, were now the rulers of the kingdom, and they exercised their uncontrolled power with unmeasurable insolence. Although a party of Independents, including the earls of Gowrie and Lennox, the lords Lindsay, Boyd, and others, concerted a scheme for seizing the king's person, which they carried into effect, 12th August, 1582, at Gowrie's Castle of Ruthven, in Perthshire, it was in the enterprise of the earl of Arran, then known in Scotland under the name of the Raid of Ruthven. On this revolution Arran was thrown into confinement, Lennox was ordered to leave...
the kingdom, and soon after died in France, and James himself remained a captive in the hands of the conspirators, whose proceedings immediately received the full approval of a convention of the estates. They had also the active though unavowed support of Queen Elizabeth, who in the overthrow of the government of Morton and the deposition of Lennox and Arran had seen her whole policy with regard to the northern kingdom thwarted. On the other hand Henry III. of France interposed his influence, though unsuccessfully, to rescue the Scottish king from the thraldom into which he had been brought.

James remained in a state of restraint amounting almost to actual imprisonment for about ten months. At last, on the 27th of June, 1583, having been permitted to go from Fotheringay to his own house, he contrived to break through the assistance of some friends, with whom he had arranged his plans, to throw himself into the castle there, and to maintain his position till the fall of his enemies, finding themselves outnumbered by those who flocked from all parts to his assistance, threw down their arms and gave up the contest.

One of the king's first acts after he recovered his liberty was to release and recall to court the infamous Arran, and again to commit the management of affairs to that luckless minion, whose government speedily became as harsh and arduous as that of his predecessor. James in the first instance had even disposed to follow a moderate and conciliatory course with the faction lately at the head of affairs; he had even visited the earl of Gowrie at Ruthven Castle and granted him his liberty. But under the new regime he soon changed his conduct. An act was obtained from the convention of estates declaring all those who had been concerned in the Raid of Ruthven guilty of high treason: most of them made their escape to England; but Gowrie, who refused a pardon, was, by order of the bishop of Stirling, cast into the Tower. To Gowrie himself his government of Scotland should be conducted in conformity with the wishes of the English queen, and by his unbounded influence over his royal master was easily able to perform that engagement. James was induced, among other acts of submission, to write to his nephew in such unfeeling and unmeaning terms as to make Mary, in the bitterness of her resentment, threaten to leave him the load of a parent's curse. Soon after this, 29th July, 1585, a treaty of intimate alliance was concluded between Elizabeth and the Scottish king, and an annual pension of 5000L. was settled by the former upon the latter. A chief minister in these transactions had been a new court favourite of James's, the eldest son of the Lord Gray, styled the Master of Bothwell, a noted individual formation in the nature and execution of intrigue and treachery. With the view, it is supposed, of removing a formidable rival, Arran had caused Gray to be sent as ambassador to the English court, where the unprincipled politician appears to have been immediatelies supported and encouraged by Elizabeth, and to have played such a part in forwarding her various schemes of policy with regard to Scottish affairs. One of the first uses which Elizabeth made of this new instrument was to effect the overthrow of Arran, on whose unsteadiness and caprice she felt that she never could place any sure reliance. With her connivance, the lords who had been banished on account of the Raid of Ruthven entered Scotland at the head of a force of 10,000 men, in the end of October, 1585, and advanced where the king had invested the castle, on which Arran took to flight, and the king was compelled to negotiate with them upon their own terms. All their past offensives were pardoned; the principal forts of the kingdom were put into their hands; and, a parliament having been called, Arran and his late associates were all dismissed from power, he himself being besides stripped of his titles and estates—the latter, chiefly the confiscated property of those whose moment of retaliation was now a new settlement of government, as followed by the conclusion, 8th July, 1586, of another treaty with England, by which the two kingdoms bound themselves in a league offensive and defensive against all foreign powers who should invade the territories or attempt to interfere with religious or political affairs.

In October of the same year James's mother, the unfortunate Mary, after her imprisonment of nearly twenty years, was at last brought to trial, and on the 8th of February following she was put to death. Between her condemnation and her execution James had made considerable exertions to save her; in addition to solicitations and remonstrances, he took steps to obtain the aid of France, Spain, and other foreign courts in support of his demands; but, his government of Scotland and the infamy of the Master of Gray, is said to have betrayed his trust, so far as actually to be the most urgent instigator of the execution, often reminding Elizabeth and her ministers that the deed cannot bite, and undertaking that Mr. and Mrs. James should soon be sold for the money which James might show. In point of fact, the Scottish king was very soon pacified; he blustered at first under the sting of the insult that had been offered him; but the skill with which he engaged both his pension and his chance of the English succession, he prudently allowed himself to be soothed by Elizabeth's hollow excuses, and continued on the same terms of friendship with her as before. Gray was indeed, on the discovery of the part he had acted, disgraced and dismissed from court. The next year James signalized his zeal in the service of his English patroness by firmly rejecting all the overtures of the king of Spain and the other Catholic powers to induce him to join them, and by co-operating seriously with the pope's pleasures for compelling the attack of the Armada.

In 1589, James was married to the princess Anne, the second daughter of Frederick II., king of Denmark. He proceeded with the necessary barriers of Scotland, having put to sea, had been driven back by a storm, and there the marriage was solemnized on the 24th of November. James did not return to Scotland till the 20th of May, 1590. The character of Queen Anne, who survived her husband, 1619, was a splendid example of the nobility of the time in not very creditable colours; she is represented as an eager and restless intriguer, both at home and in foreign parts. In May, 1589, an English embassy was sent to Scotland to regard with indulgence some of the faults she is charged with, speaks of her memory with great respect. She seems to have been a person of greater energy and decision than her husband, over whom she exerted considerable influence. Notwithstanding his constant deviation for another after another. The first memorable event that occurred in Scotland after the king's return was a daring attempt made by his relation, Francis Stuart, lately created earl of Bothwell, a grandson of James V. by his son John, prior of Coldingham. He had been committed to prison on the absurd charge, made by some unhappy persons appre-
Distances, however, were again and again excited in the course of this and the two following years by the attempts of the Catholic faction to frustrate the English throne through these two factions, which had hitherto professed the most opposite principles, joining their forces, under the conduct of the earls of Huntly and Errol, encountered the royal army conducted by the young Earl of Argyll, at Glenlivat in Aberdeenshire, 3rd October, 1594, and, notwithstanding their inferiority in numbers, put it completely to the rout. This disaster however was immediately repaired by the results of an expedition conducted into the northern districts by James himself. He afterwards receiving their force, they were allowed to retire beyond seas on giving security that they would engage in no further intrigues against the Protestant religion or the peace of the kingdom. Bothwell fled to France, and afterwards withdrew to Spain and Italy, where he professed himself a convert to popery, and spent the rest of his days in obscurity and indigence.

These commotions had scarcely been quieted when James beheld the latter of the two princes, who had secured the important post into which he was brought with the clergy of the Presbyterian church, which had been legally established as the national form of religion by an act of the Scottish parliament in 1552. Although James had been induced by the favours of the court of London to be present at the moment to this popular act, he was himself an avowed admirer of episcopacy, and was even very generally suspected of a strong inclination towards popery; so that the alliance of the Church and State in this case was one, of a very flagrant nature. To make matters worse, both parties cherished the loftiest notions of their powers and rights, each indeed looking upon itself as entitled to lord it over the other. In December, 1595, in a tumult of the people and courtiers of London on the 7th day of November, the life of the king was placed in the greatest danger, and the decided measures that followed on both sides made the contest assume the appearance of the commencement of a civil war. In this case was the court and opposition, however were with the king; the clergy and the people in vain endeavoured to find one of the nobility who would espouse their cause and come forward as their leader; and by an unusual exertion of vigour and firmness James was enabled not only completely to crush the insurrection, but to turn the occasion to account in bringing the Church into full subjection to the civil authority. In the course of the following year, 1598, the substance of episcopacy, in a political sense, was restored by seats in parliament being given to all the bishops in their dioceses. The union of the General Assembly was gained over to acquiesce in this great constitutional change.

The most memorable event in the remainder of James's Scottish reign is the discussion and decision of the question of the sovereignty by the name of the Gowrie conspiracy. On the 5th of August, 1600, James, being then at Falkland, was induced by Alexander Ruthven, a younger son of the earl of Gowrie who was executed in 1684, to accompany him with a few attendants to the house of his brother the earl of Gowrie at Perth. Some time after his arrival he was led by Ruthven into a retired apartment of the house; there a struggle took place between the two, in the presence only of the king, and his brother the earl. The struggle terminated on his elder brother's death, and the younger Ruthven interfered at all, or, according to his own account, only for the king's protection. Meanwhile, what was going on was perceived from the street, on which the people assembled, and the king's attendants rushed to the room: on the end the king remained unharmed, but both Alexander Ruthven and his brother the earl were killed. These are nearly all the undoubted facts of this strange transaction: they seem to establish a design on the part of the Ruthvens to obtain possession of the king's person, and there are some circular passages from the court Taken. [Ruthven,] which were prompted by the English government. That they intended to take his life, as James endeavoured to make it appear, the whole circumstances of the case will scarcely allow of a doubt. James was the darkest in history, and, after the expenditure of much ingenuity in the attempt to clear it up, it may be pronounced that no explanation of it which is satisfactory at all points has yet been given, or is likely ever to be attained. What was the nature of the plot, it is known from the other events of the time, and had as little effect upon anything that came after it as it is known to have had of connection with anything that went before.

In the last years of his residence in Scotland James was much occupied in providing for his escape to Spain. He was familiar with the history of the English throne, an object which, from the capricious temper of Elizabeth, and other circumstances of the case, remained of doubtful attainment up to the very moment of its accomplishment. Although no party to the rash attempt which led to the flight of James's life in 1601, he had been previously in correspondence with that nobleman, who seems to have led the Scottish king to believe that zeal for his cause was the motive of his conduct; and it is possible that the ill success which that attempt appears to have been prepared to go all lengths to save him from the block, having even ordered the ambassadors, whom he despatched immediately to the English court, to follow up their entreaties and remonstrances, if necessary, with an open declaration of war. The head of Essex however had fallen before the Scottish ambassadors reached London. Eventually Sir Robert Cecil himself became James's chief confidant; but it is remarkable that even after he had thus forewarned of the English king's design he continued to hold a clandestine correspondence on the same great subject of the succession with other parties, of whose participation in the business Cecil apparently was kept in entire ignorance. (See Lord Hailes's Remarks on the History of Scotland, May, 1619.) His plans to escape having been prepared, and were published at Edinburgh by Lord Hailes (Sir David Dalrymple) in 1676, under the title of 'The Secret Correspondences of Sir Robert Cecil with James VI., King of Scotland,' 12mo.

James at length became king of England by the death of Elizabeth, 24th March, 1603, when his accession took place without a murmur of opposition from any quarter. Having set out from Edinburgh on the 5th of April, he entered London on the 29th, after a journey which, as the countries resembled a triumphal progress. Many of his Scottish courtiers accompanied his sovereign, and the prodigality with which he distributed the wealth and honours of the kingdom among these hungry adventurers was one of the first things in his conduct that disgusted his new subjects. In his foreign policy James began by continuing in the same course that had been pursued by Elizabeth, entering into a close alliance with Henry IV. of France for the support of the Dutch and resistance to the aggressions of Spain. The conspiracy of Sir Walter Raleigh, Lord Cobham, and others, to place on the throne the Lady Arabella Stuart, James's cousin, was the first domestic affair of interest. [RALEIGH, WALTER; COBHAM, LORD.] The charge against James's attention was the settlement of the disputes between the Church and the Puritans, for which purpose a conference was held at Hampton Court, in January, 1604, and the points of difference were brought to a probable settlement. [CONFERENCE.] James's first parliament met on the 19th of March, and was opened by a speech which, as Hume remarks, proves him to have possessed more knowledge and greater parts than prudence or any just sense of decorum or propriety. Among other things he zealously urged the union of England and Scotland into one kingdom; but nothing came of this proposal for the present. James however, of his own authority, now named himself his heir and successor to the title of King of Great Britain. [GREAT BRITAIN.]

Peace with Spain was concluded, much to the gratification of the king's wishes, on the 18th of August this year. The great event of the year 1605 was the Gunpowder Plot. [FAWkes, Guy; GARNET, HANS, &c.] Before this the history of the reign is marked by no memorable events either foreign or domestic; but, although James still continued to govern by parliaments, various causes were contributing gradually to alienate the people and prepare the elements of that open contest between the two powers which broke out in the next reign. In 1612, the death of James's eldest son, Henry prince of Wales, in the nineteenth year of his age, cut short a general expectation on the part of the nobility that the prince had already endowed himself by the promise of a character which may be most shortly described as being in almost all respects—in its defects as well as in its virtues—

P. C., N 798.
The year 1618 was disgraced by the execution of Sir Walter Raleigh, on the monstrous pretense of the sentence passed upon him for the conspiracy in which he had been involved in the first year of the king's reign, but in reality as a sacrifice to the court of Spain. [Raleigh. But the public opinion at James's accession to the Catholic power was roused to a still higher pitch by the great foreign events of the two following years, when, Austria assisted by Spain having attacked the Bohemians, who had chosen the Elector of Saxony as their king, and were furnished with his son-in-law and the Protestant interest on the Continent, of which he was thus installed as the champion, but even refused to acknowledge his new regal title. Frederick was soon driven both from his acquired and his hereditary dominions, and the Bohemians, in alliance against him, and obliged with his family to take refuge in Holland. Staggered by this sudden catastrophe, and by the veneration with which the people expressed their rage and grief, James now hastened to take some steps to repair the disasters which his pellipanility and inaction had lastly occasioned. After endeavouring to raise money in the way of a benevolence, he found himself obliged to call together a parliament, the first that had been allowed to meet for forty-five years. In this parliament, whatever the other things for the impeachment of Bacon [Bacon, Francis], the first decided stand was taken by the Commons in their content with the crown by their famous protest, passed 18th December, 1621, in reply to the king's assertion that the petition of right, which was a furtherance of his ancestors and himself. That the liberties, franchises, and jurisdiction of parliament are the antient and undoubted birthright and inheritance of the subjects of England. This resolution, which the king tore from the journals, and he now hoped by the same arguments to be able without having recourse to arms, to recover the Palatinate for his son-in-law. But in both these expectations he was disappointed. For some time the negotiations seemed to proceed favourably; but they were in 1623 brought to a sudden and fatal termination by the interference of Buckingham, who, after having persuaded Prince Charles to proceed along with him to Spain for the purpose of expelling the matter, disgusted and quarrelled with the king, who had been induced to take such a step. Buckingham, who, after having been knighted, was created successively Viscount Villiers (1616), earl of Buckingham (1617), marquis of Buckingham (1618), and duke of Buckingham (1623), continued the first favourite and ruling minister during the remainder of the reign.

In the summer of 1617 James paid a visit to Scotland, and, having summoned a parliament, succeeded, though without great difficulty, in obtaining the assent of that body, and also of the General Assembly, to such regulations as he had proposed in the interests of the king's accession to the English throne, brought the Scottish church, in government, in ceremonies, and in its position in relation to the civil power, very nearly to the model of the English. In the same year the corporation of London by act of the mayor, was substantially an Episcopal church. But the popular feeling of the country was never for a moment reconciled to these enforced changes.
Tobacco

The Proceedings of the 1st August, 1605, Memorials of the Gunpowder Plot. A Declaration for the Oath of Allegiance, 1665 (which was answered by Cardinal Bellarmine, and produced a long controversy, and many other publications on both sides, for an account of which see a note by Dr. Birch in the Appendix to Harris’s Life: ‘A Protestant Resolution to all Matters hereticks,’ c. 1605 (on the same subject); ‘A Declaration (in French) concerning the Proceedings with the States-General of the United Provinces of the Low Countries, in the Cause of D. Conradus Vorstius’ (appointed Professor of Divinity at Louvain, 1612; and ‘A Declaration of the Right of Kings (in French), in answer to Cardinal Perron, 1615. A collected edition of all the preceding prose works, except the Discourse on the Gowrie Conspiracy, is published in 1616.)

Works of the Most High and Mighty Prince James, &c., by James (Mountague), Bishop of Winton. The volume also contained some treaties that had not before appeared, particularly ‘A Counterblast to Tobacco’ (this however, according to Harris, was first printed in quarto, without name or date), and ‘A Discourse of the Manner of the Discovery of the Powder Treason.’ A Latin translation of this collection was published under the care of Bishop Montague, in 1619. To the works already enumerated are to be added those of the least curious or characteristic of the royal author’s compositions; various sonnets and other short pieces of verse, in English and Latin, scattered in different collections, printed and manuscript; and A petition of the Electors of the Palatine, 1622; to the Elector Palatine, the author of George I., was the youngest of the thirteen children of Anthony Waldo and her husband the Elector Palatine. [Graze.] Besides the well authenticated public acts of James I., any materials may be found for the biography of his character in the works of various writers who were his contemporaries; specially Anthony Waldo’s ‘Court and Character of King James,’ 12mo., 1651; Arthur Wilson’s Life and Reign of King James the First, King of Great Britain, fol., 1653, or as reprinted in the second vol. of Robert Knoxe’s ‘Complete History;’ Sir Edward Peytons’s Divinity of the Kings of Scotland, in a number of speeches, 8vo., 1652; Sir Ralph Winwood’s ‘Memorials of Affairs State Foreign and Domestic,’ 2 vols., 1673, &c.; Francis Osborne’s ‘Traditional Memoirs on the Reign of King James,’ in Works, 8vo., 1673, &c.; and Roger Coke’s ‘Detection of the Court and State of England,’ 2 vols. 8vo., 1697. See also ‘Dr. James Welwood’s Life of his Majesty,’ 12mo., second edition, 1740, and Tomson the Second, he was certainly not destitute of a literary talent, however dashed most of the exhibits of it were with occasional grotesqueness and absurdity. He was a voluminous author, and any account of him should be very incomplete which did not notice his various jocund works in prose and verse. They have been partially enumerated by Harris, in his ‘Historical and Critical Life,’ and by Horaces Walpole, in his Royal and Noble Authors. But the fullest account that we have met with is that given by Dr. David Irving, in his Lives of the Scottish Poets, 2nd edition, 3 vols. Edinb. 1810, vol. ii., pp. 207-291. His first publication, a collection of poems, under the title of ‘The Fourth of July (New Year’s) Eve, 1758, was \n
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nobleman till the 21st of April, 1648, when he made his escape from St. James’s Palace, disguised in female attire, and took refuge in Holland with his sister Mary, princess of Orange. Here he immediately joined a part of the English fleet which had revolted from the parliament, and was then lying at the Texel, where he was made captain-general and commander-in-chief, as admiral, he soon after resigned that post to his brother, the prince of Wales, on the arrival of the latter from Paris, and returned to the Hague. When Charles, now styled king, his adherents, came to Jersey in September, 1646, he was accompanied by the duke, who remained with him during his stay of three or four months. He then returned to the Continent, and resided for some time with his mother at Paris. ‘Never little family,’ says Clarendon, who was now with him and wrote a great number of volumes, ‘never was there made into so many pieces and factions. The duke was very young, yet loved intrigues so well that he was too much inclined to hearken to any men who had the confidence to make bold propositions to him. The king had ordered him to remain with the queen, and to obey her in all things, religion only excepted. The Lord Byron was his governor, ordained to be so by his father, and very fit for that province, being a very fine gentleman, well bred both in France and Italy, and perfectly versed in both languages, of great courage and fidelity, and in all respects qualified for the trust; but his being absent in the king’s service when the duke made his escape out of England, and Sir John Berkleie being then put about him, all pains had been taken to lessen his esteem of the Lord Byron. The Lord Byron, who was lying along the Dutch coast, was no longer governor when the Lord Byron came thither, and hearing that he was on his journey, infused into the duke’s mind that it was a great lessening of his dignity when he was no longer a prince of seventeen (of age, and backward enough for that age) to be under a governor; and so, partly by disesteeming the person, and partly by reproaching the office, he grew less inclined to the person of that good lord than he should have been.’ (Life, i. 284, edit. of 1697.) Shortly before his separation with Clarendon it had been reported that Charles, then in Scotland, was dead; upon which the duke, looking upon himself as almost already king, had set his mother’s authority as little before of the least value, with the notion of taking counsel, as to what he ought to do, with the duke of Lorraine. When the falsehood of the intelligence about Charles was discovered, he and the advisers by whom he was attended resolved upon going to the Hague; ‘and when they had notified all people there,’ says Clarendon, ‘they came to Breda, where the chancellor had met them. The duke himself was so young that he was rather delighted with the journeys he had made than sensible that he had not seduced them with reason enough; and they had fortified him so much as to have been unwilling, had they had that he had committed any error.’ (Ibid., p. 290.) In the end he found himself obliged to return to his mother at Paris; and here he chiefly resided till he attained his twentieth year, when he received a commission in the Dutch army, and served for some time under Marshal Turenne. The peace concluded with Cromwell however in October, 1655, compelled him, with his elder brother, to quit France; upon which, on the invitation of Don John of Austria, the governor of the Low Countries, he retired thither, and entered the Spanish service. Both he and his brother the duke of Gloucester fought on the Spanish side at the siege of Dunkirk, which surrendered to the French in June, 1658.

At the Restoration (May, 1660) the duke of York returned to England with the king, and was immediately made lord-high-admiral and lord-warden of the Cinque Ports. The course of his conduct for the next twenty-five years forms an important part of the public history of his brother’s reign, and only the leading incidents can be shortly noticed here. In September, 1660, he married Anne, the eldest daughter of the Chancellor Hyde (afterwards Earl of Clarendon), to whom it was affirmed that he had been formerly engaged at least consorts before that time. Though Anne was but sixteen years of age, and the marriage took place in August; yet the prince of Wales, with all the rest of the court, came to see the ceremony. The duke entered into the marriage with great sorrow; for he was very much in love with his first mistress, and was determined as to the marriage. He endeavoured to avoid the marriage, and that ‘he thought he must have shaken her from claiming it by great promises and as great threatenings; but she was a woman of great spirit, and would have it known that she was so, let him use her after his heart as he pleased.’ This altogether opposed to the king’s orders, and was one of the things which induced the king to give his consent to the marriage with a ‘passion which was expressed in a very wonderful manner, and with many tears, protesting that if his majesty would not give her he would himself immediately leave the kingdom, and must spend his life in foreign parts.’ But the delay of the step till so near the last moment did not look much like impatience on the duke’s side, and rather gives ground for suspecting that there was some reluctance which it required great pressure to overcome. The duke of York took an eager part in promoting the war with Holland, which broke out in the close of 1664, and as lord-high-admiral he assumed the command of the fleet which was fitted out, which put to sea before any declaration of hostilities. The motive that has been sometimes assigned for the conduct of both the brothers on this occasion is their wish to crush the Dutch as a Protestant people, and to disable them from interfering to prevent the re-establishment of popery in England. On the 3rd of June, 1665, the duke gained a great victory off Harwich over the Dutch fleet commanded by Admiral Opdam, who was killed, and nineteen of whose ships were taken or sunk, with the loss of only one on the part of the English. The death of the duke of York in 1688, so shattering to the hopes of his people and his party, and bringing in for the first time a man of so much spirit as the Duke of Cumberland, and kept a mistress almost from the date of his marriage, six months before her death the duchess had signed a declaration of her reconciliation to the ancient religion; and immediately after that event the duke also publicly avowed his submission to popery, and his former inclinations having been long suspected, did not fail to create a great sensation, especially as, from his brother’s want of issue, he was now looked upon as Charles’s probable successor on the throne.

When the war was now declared against Holland, in March, 1672, the Duke of York again took the chief command at sea. The most remarkable event of this contest was the action fought 26th May, 1672, in Selsey, off the coast of Suffolke, between the combined Dutch and French fleets under the duke and Count D’Estrees, and the Dutch fleet commanded by De Ruyter, who attacked the allies with a very inferior force, and was not driven off till the engagement had lasted the whole day, and the English fleet had been on the point of being completely cut off by the enemy, whose ships were driven to seek an escape. The French are accused of having taken little part in the affair; the object of their government, it is conjectured, having been to allow the English and Dutch to destroy each other. This action took place in the beginning of the following year, of the Test Act, which required every officer, civil and military, to receive the sacrament according to the usage of the Established Church, the duke necessarily resigned both the command of the fleet, in which he was succeeded by Prince Rupert, and the office of lord-high-admiral, which however was assigned to a board of commissioners consti- tuting of his friends and dependants, so that he still remained substantially at the head of the naval affairs of the country.

On the 21st of November, 1673, he married Mary Beatrix Klaren, daughter of Alphonsus, lord of Belasye, lady then only in her fifteenth year. Before concluding this union he had paid his addresses to Susan, Lady Belasye, daughter of Sir William Armine, Bart, and widow of Sir William Belasye, the lord of that barony; but that affair was broken off, partly by the obstinate Protestant zeal of the lady, partly by the interference of her father, who gave the king information of what was projected, when Charles sent for his brother and told him that having played too fast on this occasion, he desired him to marry the lady he ought to be satisfied with without repeating the same thing in his advanced age. The lady was induced, partly by promises, partly by threats, to relinquish the claim she had to his hand. The king had, at one time, written a promise of marriage, and by way of compensation was, 25th May, 1671, knighted Lady Belasye for life. She survived till 1713. On the 4th of November, 1677, the Duke’s daughter Mary, then in her sixteenth year, was, greatly to the public satisfaction, mar-
needed to her cousin William, Prince of Orange, the consent of her father having been obtained to this Protestant alliance by the persuasions of the king, his brother, who represented to him how much he might soften the popular hostility to him on account of his religion by so apparently doing. During the excitement produced by Titus Oates's Popish Plot, in 1678-9, the Duke of York by the advice of his brother retired to the Continent, and he resided at Brussels with his wife and his youngest daughter for five or six months; and the other direction taken for his expulsion from the throne was twice read in the Commons, and ordered to be committed, by large majorities, and was only prevented from being passed in that house by the prorogation of the parliament, 27th May, 1679. To this date may be ascribed the commencing of the Duke of York and Charles's natural son the Duke of Monmouth, whose popularity with the nation, still more than the presumed partiality of his father, undoubtedly procured him so formidable a competitor for the succession, in the actual circumstances of the legitimate heir. For the present however the latter succeeded in maintaining the ascendency. Returning home in the beginning of September he had the satisfaction of seeing Monmouth restored from seditious and exiled, while he obtained from the king for himself the government of Scotland. Before he set out for that country however he became involved with other persons of his religion in the quarrel of giving countenance to the story of the Meal Tub Plot, which, so far as they knew, they were of which they were suspiciously dispossessed, of counteracting the effects of Oates's pretended discoveries. The share which the Duke had in this business only added to the suspicion that this fresh obliteration of his character, and which was still further increased by the bigoted severity of his administration of affairs in Scotland. In November, 1679, a new exclusion bill was brought into the House of Commons, but although it was carried through that house to the second reading, it was thrown out in the Lords. The bill was again introduced in the Lower House in the following January; but the prorogation of the parliament on the 10th of that month, and its dissolution a few days after, prevented the business being proceeded with. A new parliament having met at Oxford in March, the bill was again brought forward there, and again defeated by the same expedient, this the last parliament held by Charles II having been dissolved after it had sat only seven days.

A visit which the Duke of York paid to London in March, 1683, is memorable on account of a disaster which happened to the ship in which he sailed on his return to the north in May; it struck upon a sand-bank near the mouth of the Thames, and was dismasted with the loss of many of his captains, among whom was Mr. Churchill, afterwards the great Duke of Marlborough, were the only persons saved. The solitude the Duke was said to have shown on this occasion for the exercise of his piety and his dogs contributed considerably to deepen the popular odium of which he was the object. Very soon after this he finally left Scotland, his government of which country had been throughout an oppressive and cruel tyranny, and again taking up his residence at the English court, became his brother's chief counsellor, and, much more than Charles himself, whose increased indolence and infirmities now more than ever indisposed him for exertion, the mainspring and director of the conduct of public affairs. To his instigation are chiefly to be attributed the measures and resolutions of Russell and Sidney, and the other violent and despotic acts which crowded the two closing years of Charles's reign.

On the death of his brother, 6th February, 1683, no opposition was made to the accession of James. In his address to the privy council, he said, 'I have been reported to be a man for arbitrary power; but that is not the only story that has been made of me; and I shall make it my endeavour, while the Government remains with me, to adapt it as it is now by law established.' In his very first measures however the new king showed, to borrow the expressions of Hume, 'that either he was not sincere in his professions of attachment to the laws, or that he had entertained so lofty a notion of them as the custom of his time was, so that justice and sincerity would tend very little to secure the liberties of the people.' He began by issuing a proclamation ordering the customs and excise duties to be paid as usual, although the parliamentary grant of them had expired with the termination of the late reign; and this step, it appears, he took after a secret consultation with the French minister, Wilber- lon, with whom arrangements were soon completed for the renewal of the pension that Charles had received from King Louis, and the payment of that to the crown upon that of France. (Sir John Dalrymple's Memoirs of Great Britain, Appendix, part i., pp. 100-113, and Fox's History of the Early Part of the Reign of James II.) In addition made an equal claim to the disposition of his principles, by going openly and in great state to the illegal celebration of the mass; he even lost no time in sending an agent to Rome to make his submissions to the pope and to prepare the way for the re-admission of England into the Catholic church.

He determined however to call a parliament, for reasons which he explained to Barillon partly in person, partly through the earl of Rochester, lord-treasurer. 'Hereafter,' said he, 'it will be much more easy for me to put off the assembling of parliament, or to maintain myself by other means which may appear more convenient for me... I know the English; you must not show them any fear in the beginning. I will take good care to hinder parlia- ments and foreign affairs from being referred to the session as soon as I see the members show any ill will.' By the mouth of Rochester, he observed in addition that he would be too chargeable to Louis if he should be obliged to come to him for all the supplies he at present obtained: that which did not belong to himself from also having recourse to the French king for some assistance; he hoped that in the difficult beginning of his reign Louis would help him to support the weight of it; that the obligation would engage him still more not to depart from the road which he used to think the deceased king his brother should have kept with regard to the French monarch; and would be the means of making him independent of parliament, and putting him in a condition without the loss of the state to think, if they should refuse him the continuation of the revenues which the late king enjoyed. (Barillon's Dispatch of the 19th February.) When, a few days after, in compli- ance with these broad hints, or rather importune solicita- tions, Louis transmitted bills for 250,000 livres, James expressed his gratitude in the most rapturous terms, even shedding tears as he spoke; and Rochester, Sunderland, and Godolphin hastened to Barillon to tell him he had given life to the king their master. It was readily agreed, in re- quital of Louis's bounty, that the chief obstacle which stood in the way of the seizure by the French king of the Spanish Netherlands should be immediately removed, by the exist- ing treaty between Spain and England being held to have terminated of itself.

These curious details of its commencement supply the key-note to the whole course of James's disgraceful reign. All that followed flowed naturally from such a beginning. According to public opinion, the parliament met at Westminster on the 20th of May, and, in the usual temper of the nation at the accession of a new sovereign, was found abundantly compliant. The revenue which the king demanded was granted to him for life by the Commons, with little or no debate, and by a unanimous vote; and on almost every other subject that came before it that assembly manifested the same complete subserviency to the wishes of the court; a strong attach- ment to the Established church, and a still lingering horror of the popish plot, being the only dispositions on the part of the members that were in the least troublesome to manage. The influence of the court indeed had been unscrupulously employed in their election, and with so much success that James declared there were not forty of them whom he would not have in his household. A Scottish parliament, which had assembled a few weeks before that of England, responded to all the royal demands in a spirit still more slavish. Scotland indeed, by the unheard-of atrocities of the late king's government, had been made more tractable by the presence of those attempts is well known. Argyll, after the duration of his few followers, was apprehended and executed at Edinburgh, on the 30th of June.
Monmouth, whose landing did not take place till the 11th of that month, by which time Argyl was all but an unattended fugitive, was, after having met in the first instance with a much greater promise of success than his confederate in the north had experienced, defeated, 5th July, in the decisive battle of Steenbergen, and being two days after found concealed in a ditch, was brought to London, and delivered to the executioner on the 15th of the same month. His uncle obdurately refused to grant him either his life or even the briefest reprieve. The suppression of Monmouth's insurrection was followed by the military vengeance of Colonel Kirke, and the more revolting enormities of the western 'campaign,' as it was jocularly called by the king, of chief-justice Jeffreys. Between the two the south-western counties were strewn with the dismembered limbs of human beings, women as well as men, butchered by the sword or the axe.

When the parliament re-assembled in November, the king told them that in the late crisis he had employed a great many Catholic officers, and that he had, in their favour, by his own authority dispensed with the legal test of conformity to the Established Church to be taken by every person appointed to any public office. This was too much to be borne without some expressions of dissatisfaction and alarm. The presence of the bishops was not, however, overruled. The lords produced a meeting of Commons, exceedingly timid and feeble. A very respectful and submissive address having been answered by the king with great arrogance and violence, nothing further was done in the matter. The addresses were at last formally voted; and ordered to the members, who had ventured to observe, when the king's answer was read, that he hoped they were all Englishmen and not to be frightened by a few hard words, was even sent by a vote to the Tower for his audacity. In the Lords a committee of inquiry was appointed to get rid of which the parliament was prorogued after it had sat for little more than a week. One of the acts of this parliament was to extinguish completely the liberty of the press, and to give a fresh blow to the periodical setting up of an act originally passed for two years in 1662 (the 14 Car. I. c. 14 Car. II. c. 10) and continued for seven in 1664 (by the 16 Car. II. c. 8); a most important piece of legislation, which yet, as Mr. Fox remarks, has been scarcely noticed by any historian.

James's son-in-law, the Prince of Orange, had not been an unsavory spectator of what was passing in England; and to him the hopes of the English people were very generally turned. The history of the French Revolution in 1789 is probably with no great definiteness a complete union of views, joined in applying to him for his assistance to save the public liberties; and he at last made up his mind to comply with their solicitations. Having sailed from a fleet that brought many more war and transports, having on board a land force of about 14,000 men, he landed on the 5th of November, at Torbay in Devonshire. Before the end of that month James found himself nearly deserted by every body; all were gone over to the prince, the young prince of Orange, and to his resisters and friends, even his children. In the night of the 12th December, having previously sent over the queen and the young prince to France, he embarked with a single attendant in a boat at Whitehall Quay, with the intimation that he was driven back by contrary winds, and forced the next day to land at Faversham, from which he returned on the 16th to Whitehall. The next day the prince, having arrived with his army and followers to London, James on the 21st proceeded to Rochester, and on the 23rd embarked from that port on board a frigate, in which he was conveyed to Ambleteuse in Brittany. He then repaired to St. Germain's, where Louis XIV. received him with great kindness, gave him the castle of St. Germain's for his residence, and settled on him a revenue sufficient to support the expenses of his small court.

Meanwhile the English crown was settled upon the price and princes of Orange as King William III. and Queen Mary. (U.C. 115.) The prince entered London March in the following year James, having sailed from Brest, landed at Kinsale, and thence immediately marched to Dublin, with a small force with which he had been supplied by his French king. A few days after his landing at Lough- derry, which however he was not able to reduce, although his forces continued to encompass it for three months before it was relieved. He himself, returning to Dublin, held a parliament, and for some time continued to exercise the rights of government. The Prince of Orange's operations, the detail of which belongs properly to the history of the next reign, his cause was finally ruined by the signal defeat which he received from King William in person at the battle of the Boyne, fought 1st July, 1690.

He had also the following illegitimate issue: 1. By Arabella, sister of John Churchill, afterwards duke of Marlborough, Henrietta, born 1670, married Sir Henry Waldegrave, afterwards 1st Earl of Halton, 3rd April, 1709; 2. By the same, James, surnamed Fitzjames, born in 1671, created duke of Berwick 1687, died 12th June, 1734; 3. By the same, Henry Fitz-James, styled the Grand Prior, born 1673, died 7th December, 1792; 4. By the same, John, 1st Duke of Somerset, born 1674, died 30th December, 1714; 5. By the same, Catherine, daughter of Sir Charles Sedley, created in 1685 Countess of Dorchester for life, Catherine, born 1681, married 1699 to James Annesley, earl of Anglesey; 6. After having obtained a divorce from him, to John Sheffield, duke of Buckingham, born 1727睁 7. James II. employed part of the leisure of his retirement in writing an account of his own life, the original manuscript of which, extending to nine folio volumes, was preserved only as a collection of letters, when it was forwarded to St. Omer for the purpose of being transmitted to England, but was there destroyed, having, as it is said, been committed to the flames by the wife of the person to whose charge it was consigned, in her fears for the safety of her husband if it should be found in his possession. A digest or compendium however of the matter of the royal autobiography had been long before drawn up by an unknown hand, apparently under the direction either of James or his son; and this performance (of which there are two copies in existence) being formed the principal portion of the papers formerly belonging to the Stuart family, which were obtained by George IV. when regent, has been printed under the title of The Life of James the Second of England, being the extracts out of a memoir write of his own hand. Together with the King's Advice to his Son, and his Majesty's Will. Published from the Original Stuart manuscripts in Carlton House, by the Rev. J. S. Clarke, LL.B., F.R.S., Historiographer to the King, Chaplain of the Household, and Librarian to the Prince Regent,' 2 vols. 4to. Lond. 1816.

JAMES RIVER. [Virginia.]

JAMESONITE, a mineral, which occurs crystallized and massive. It consists of—sulphur 0°225, lead 0°387, antimony 0°439, iron 0°936. Its specific gravity is 4·504.

JANEIRO, RIO DE, commonly called Rio, but whose full name is S. Sebastião de Rio de Janeiro, the capital of the empire of Brazil in South America, is situated in 22° 58' lat. and 43° 15' long. It is a deep seaport, a large city, with many miles of fine quays, and famous for its fine parks and gardens. Its population is about 200,000. It is an important port, having great trade with the West Indies, and with the United States. The river on which it is situated is navigable for 12 miles, and has numerous Excellent harbours. The city extends along both rivers, and is divided into several wards. Into the city come men of all nations, and there is nearly a perpetual market. The inhabitants are principally Portuguese, but there are numbers of blacks and mulattoes. The city is well built, and has many fine churches and public buildings. The University of Rio Janeiro is very considerable, and is one of the best in Brazil. The city is also celebrated for its cottons and sugar-cane. The climate is warm, and the sea is open all the year. The soil is of a very fertile character, and the country is well cultivated. The city is the seat of the archbishop, and is a bishopric. The English are numerous in the city.

The bay (b) is in latitude 22° 58', longitude 43° 15', and is bounded by several large islands. It is about 12 miles in length, and is entered by a channel 4 fathoms deep. The depth of water is about 15 feet at full and change, some precaution is necessary to avoid shallow waters. The bay is surrounded by high hills and mountains, and is not exposed to any kind of wind, and in every respect is one of the best harbours on the globe. It is diversified by numerous islands and rocks, and is sheltered from the south-west. It contains a great number of vessels, and is the residence of several governors, situated in the northern and western portion of the bay. Numerous rivers fall into the bay. Though all of them have a short course, most of them are navigable for a few miles from their mouth, and facilitate the transportation of the produce of the country. Near the entrance of the bay, and where it is only from four to eight miles wide, the town is built on its western shore, as already observed. It extends along the shore about 2 miles, and is situated on a hill which contains a high hill with the church of Nossa Senhora da Glória on it. To the west of the plain rises a range of high hills called Corcovado, containing many picturesque valleys, among which that of Laranjeiras, or 'of the oranges,' is distinguished by its beauty. The substance of which the mass of the hills round the town is composed is granite, in which numerous quarries are opened near the city. The granite veins vary in thickness from two or three feet to many inches. That part of the town which is south of the hill Da Glória is very narrow, consisting of two streets which extend south as far as the small bay of Botafogo. The city or principal town is built a little north of the hill Da Glória, and on a rocky shore of some elevation opposite. A line of stone projects a short distance into the bay, and is ascended by a flight of steps. It leads immediately to the Palace Square, which is 150 yards long and 80 wide. Two sides of this square are occupied by the Imperial Palace, which was formed by uniting the Palace of the Viceroy, which stands on the southern side of the square, with the Convent of the Carmelites and the Senate-house by passages; the two latter buildings still occupy the western side of the square. The palace of the Viceroy is the appearance of a manufactory than of the residence of an emperor. The north entrance of the city is occupied by a row of houses two stories high, which are private property. The city itself stands on a level plain, and extends in the form of a rectangular oblong from north-west to south-east; on its northern border are five low hills. It consists of eight straight and parallel but narrow streets, intersected by many still narrower streets at right angles. A large square, called Campo de S. Anna, which joins it on the north-west, divides the city from the Cidade Nova, which extends in a straight line westwards to the neighbourhood of the royal villa of S. Christovao.

The streets are paved, and they also have foot-pavements, which however are so narrow as scarcely to admit of two people passing abreast. The houses, which are generally built of stone, and have two stories; the upper one is sometimes of wood: the roofs are of tiles. The latticed windows, which formerly were general, have disappeared. The town is lighted but sparingly, and only for a part of the night. The most distinguished buildings are the cathedral, and the churches De Candelaria and S. Francisco de Paula. The college, which once belonged to the Jesuits, is also a fine building; and a magnificent theatre and an Exchange in a good style have lately been erected. The most remarkable of the public buildings is the aqueduct, which brings down the water from the mountains of Corcovado (2400 feet, according to others 2160 feet, above the sea) to the town. It consists of two walls built of hewn stone, a yard from each other, the space between being arched. The water thus brought to the town is distributed into several fountains, but not conducted to the houses, as is the case in many other towns in South America.

Rio de Janeiro contains a population of more than 200,000. The number of white inhabitants is rather narrow, being formed by two rocky and projecting tongues of land, whose extremities are hardly a mile distant from one another. On the extreme point of the western tongue is built the fortress of S. Cruz, and on that of the eastern, the fortress of Nossa Senhora de Natividade. At no great distance from, and opposite to, the entrance, but within the bay, is a low rocky island, Ilha da Lagem, on which also a fortress is built, so that the entrance of the bay is very well defended. The average depth of water within the bay is 3 fathoms, and is found everywhere within the bay. As the title rises within the
The number of such and similar institutions. As to the commerce of Rio, see Brazil, vol. x, p. 268.

(Cazal, Corografia Brasilia: Henderson's History of Brazil; Travels in Brazil of Spix and Mareius; Caldeocughi; On the Geography of Rio de Janeiro, in Geogr. Trans. vol. ii.)

JANIRA. [Hopwood's Clement X.]

The word is also employed by Oken to designate a genus of Acalephons apparently nearly allied to the Callianaridae.

JANIZARIES is the name of a Turkish militia once formidable to the last. The origin of this body dates from the reign of Amurath, or Murad I, who, after having overrun Albania, Bosnia, Servia, and Bulgaria, claimed the fifth part of the captives, from among whom he chose the young and able-bodied, and had them educated in the Mohammedan law, and for the military life. The object of the latter, being disciplined, were formed into a distinct body of infantry, divided into sorts, or battalions, and they were consecrated and blessed by a celebrated devrish called Hadji Bektaish, who gave them the name of Yeni Cheri, or 'New Soldiers.' They soon became the terror of the enemies of the Ottomans: being completely weaned from their friends and homes, they were enthusiastically devoted to the sultan as their common father; and a strict discipline and constant sense of order and obedience far superior to the irregular bodies which formed at the time the armies of the princes of Christendom. After the death of Solymann the Magnificent, and the general and thorough decay of the Ottoman warlike spirit, when the sultan no longer was a person, the Janizary body was no longer recruited exclusively from choice and young captives, but by enrolments of Osmanshees, who, being born and bred in the faith of Islam, had no attachment to the pries, and were besides equidistant, by ties of consanguinity and friendship with the body of the people around them, and not exclusively devoted to the will of the sultan. In 1650 Mohammed IV. abolished the law by which the Christian rayahs, or subjects of the Porte, were obliged to supply a portion of the soldiers of the sultan to be educated in the Mohammedan faith and enrolled into the militia. By the original laws of their body the Janizaries could not marry, but by degrees the prohibitions were relaxed, and at last totally disregarded. And when the children's names were then inscribed on the rolls of their respective sorts; and their relations and friends, men often unlit for any warlike service, obtained a similar honour, which gave them certain privileges and protection from the capricious oppression of their rulers. In this manner a crowd of menials, low artisans, and vagabonds, came to be included in the body of Janizaries; even rayahs and Jews purchased for money the same privilege; but all this money crept into the barracks, and a few in time of peace were present at the appointed hours for receiving their soups or rations. Military exercises were abandoned; the Janizaries merely furnished a few guards and patrols for the city; many of them being only armed with sticks; and as assembled as a body except on pay-day, when they defiled two by two before their nazirs, or inspectors. Still they were formidable to the government from their numbers, which were scattered over the empire, and their influence and connections with the mob of the capital. They were mutinied against the sultans, and obliged them to change their ministers, or even depose them. In our own days they disdained Solim; and in the beginning of the reign of the present Sultan they broke out into a dreadful insurrection which lasted three days, and in which the Vizir Musi- tapha Bairacrat lost his life. In both instances they were impelled by their hatred of the Nizam Djedid, or new troops, disciplined after the European fashion. At last Mahmood resolved to put down the Janizaries; and having for several years matured his plan with the advice of his favorite Halet Effendi, and gained over their aunts and others of their principal officers, he issued an order that every or is allowed to purchase himself for his own use is to be..

JANSENISTS, a sect which appeared in the Roman Catholic Church in the last years of the seventeenth century. They professed not to attack the dogmas but only the discipline of that church, which however stigmatized them as heretical in many of their tenets. They took their name from Jan D. Jansenius, bishop of Ypres in the Netherlands, who published a book entitled 'Augustinus,' in which he supported, by means of passages from the writings of St. Augustine, certain principles concerning the nature and efficacy of divine grace which appear to have been in opposition to the doctrine of the Church. The question of grace and predestination had already been discussed in the church at various times, and had proved a stumbling-block to many theologians. Michael Bains, professor at Louvain, had been condemned in 1657 by a Papal bull for defending the doctrine of predestination in his writings, chiefly concerning that abstruse subject. Jansenius however died quietly at Ypres in 1638, and it was not till several years after his death that some Jesuits, on examining his book, discovered the following five propositions, which they denounced as heretical:—1. That there are certain commandments of God which even righteous men, however desirous, find it impossible to obey, because they have not yet received a sufficient degree of grace. 2. That none can resist the grace of God, nor anybody can resist the influence of inward grace. 3. In our fallen estate of nature it is not required, in order that we be accounted responsible beings, that we should be free from the internal necessity of acting, provided we are free from external constraint. 4. The Somn-Pelagians were heretics, in maintaining that the human will has the choice of resisting or obeying the internal grace. 5. That to maintain that Christ died for all men, and not solely for those who are predestinated, is Sem-Pelagianism. After much controversy, these five propositions were condemned by a bull of Pope Innocent X. in the year 1652, as impious and blasphemous, and the bull was received by the French prelates, and promulgated throughout France and Flanders. Their answer to it, which was signed by the Jesuits and their latitudinarian system of ethics, wrote not to defend the five propositions, but to prove that these propositions did not exist in the book of Jansenius, at least not as propounded in the five propositions; and the Jesuits again appealed to the pope, and a curious question arose for the pope, which was, to determine the exact meaning of an author who was dead. Alexander VII. however, by a new bull, in 1656, again condemned Jansen's book, as containing the five propositions in the sense ascribed to them by the former bull. Arnauld and other learned men of Port-Royal persisted in denying this assumed meaning; and thus they, and all those who thought with them, received the appellation of Jansenists. A formula was drawn out containing as many propositions, which all ecclesiastical persons in France were required to sign, on pain of being suspended from their functions and offices. A great many refused, and this occasioned a schism in the French church, and the appearance of several years. Arnauld, Pascal, Nicolle, and other reputed Jansenists attacked ostensibly the corruption, discipline, and morality of the church, and the Jesuits as supporters of that relaxation. They also inculcated the necessity of mental rather than mechanical obedience to the Church; acceding to the knowledge of the Scriptures among the people, and they encouraged general education by numerous good works which came from the press of Port-Royal. Meantime the controversy continued, although Clement IX. in 1669, entered into a sort of complicity with the non-subscribing clergy, and Innocent XI. behaved with still greater moderation towards them. But Father Jesu
Janthina, or Janthina, Lamarc's name for a genus of turbinate testaceous mollusks of remarkable habits.

Linnæus placed the form among the Helices, under the name of Helice Janthina, between Helice perorsa and Helice repara; and he was aware of its Pelagic disposition.

Janthina &c. arrangements it next to Natica, the last genus of his Neritaceae, between which family and the Macrostomes it appears in his list of Phytophagus (plant-eating) Tracheopods.

Cuvier assigns to the Janthina a place among his Pentibranchiate Gastropods, between the Pyramidellids and the Nerite.

M. De Blainville elevates the group into a family, under the name of Oxytornes, the being the fifth and last of his order Amphanaucibranchiate.

Jansenism about the name of Oxytornes, being the fifth and last of his order Amphanaucibranchiate Gastropods, between the Pyramidellids and the Nerite.

M. Rang makes Janthina a genus of the Trachidios of Cuvier, giving it a position between Ampullaria, Lam., and Littor, Rang.

*Generic Character.—Animal with a very large head and a proboscidiform muzzle, at the extremity whereof is the mouth furnished with two vertical subcarinate lineal lips (which are armed with long and very sharp points curved inward), and with a lingual enlargement (reptile); tentacles two, conical, pointed, not very contractile, and very distant, each bearing at its base a rather long peduncle, which is olochated beneath its extremity; foot oval, divided into two parts, the anterior being concave and in the form of a cupping glass (ventouse); the latter flattened, thick, and flexible; naucillary appendages lateral, rather large and fringed; respiratory cavity very open, and containing two pectinated branchiae; orifice of the ovary at the bottom of said cavity, exciting male organs very small, and on the right side.

Shell ventricoso, globular or conoid, very fragile, with a low spire, and the last whorl larger than all the rest together; aperture large, subtrigular, with disunited borders; the columna straight, the columella straight, the shell of the principal nobility. His colouring is very clear and natural; the cartilages are remarkably soft, and except in freedom of hand and in grace he was esteemed equal to Vandyck, and in finishing superior to him. He generally painted on panel, and his draperies are commonly black, which he probably chose because that colour gives greatest brightness to the flesh tints. His pictures still retain their original lustre, which is supposed to be in consequence of his having used ultramarine in his black colours, as well as in the carnations. He left England soon after the arrival of Vandyck, about the beginning of the civil wars, and returned to his own country, where he died in 1665.

JANSEN, ABRAHAM, born at Antwerp in 1689, was a competitor of Rubens, and was considered to be equal in him to many of the most important parts of the art. In colouring he was certainly inferior to Rubens alone. His compositions are spirited, his drawing correct, his pencil definite, and his draperies natural and free from stiffness. He painted subjects illumined by nightlight, and delighted in the contrast of the most brilliant light with the deepest shade. Most of the Flemish churches possess fine pictures by this master.

JANSEN, CORNELIUS, was born at Amsterdam, and lived several years in England. He was employed by King James I, and painted several fine portraits of that monarch, as well as of his family, and of several of his courtiers.

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In January, 1833, Dr. Grant exhibited to a meeting of the Zoological Society of London numerous specimens of Jantinia vulgaris, Lam., and of Veleva limboas, Lam., both animals of rare occurrence on the English coast, and chiefly met with floating in tropical or warmer seas. They were obtained by him at the beginning of September, 1832, in Whitand Bay, close to the point of the Land's End, Cornwall, where they were thrown in great numbers on the sands, after a storm of three days' continuance from the north-west: they must, however, have been floating before they were directed to the coast by the storm, in latitudes at least as high as that in which they were found. Dr. Grant regards it as probable that neither of these animals is capable of discharging at will the gaseous fluid by which they are supported on the surface of the sea; otherwise, in such a violent and continued tempest as that which stranded them, they would have emptied their vesicles and have sunk to the stiffer bottom. (Zool. Proc.)

Browne on the other hand says, speaking of the float. 'This raises and sustains it while it pleases to continue on the surface; but when it wants to return, it throws off its bladder and sinks.'

Lamarck placed Jantinia among the plant-eaters; but in the communication by Dr. Grant above noticed, it is suggested that Jantinia, a predacious Gastropod accompanying Veleva, as there described, may prey upon it, and acquire from it the blue colouring matter of its shell.

Several authors speak of the beautiful purple liquor which the living animal diffuses when it is touched.

We select as an example Jantinia fragilis.

Description.—Shell pale; body whorl angulated; the base flattened, striated, and deep violet; aperture broader than long; outer lip deeply emarginate. (Swainson.)

Locality.—Oceanic in warm and temperate climates; several instances are recorded of its capture near the British Islands, and on them.

Jantinia has also occurred on the English and Irish coasts. (Zool. Proc., 1835.)

Mr. Swainson, who in his 'Zoological Illustrations' has given beautifully correct figures of J. fragilis and J. globosa, justly remarks that the shells are so brittle that it is rare to find a perfect shell.

M. de Blainville is inclined to think that those shells which are notched belong to females.
who, as well as himself, were worshipped by the Etruscans and Romans. Jesus, born about 5 B.C., was the son of the sun, and his attributes appear to connect him with sun-
worship. He is the porter of heaven; he opens the year,
the first month being named after him; he presides over
the dawn, whence he is sometimes represented with four
horns (Janus). The Etruscan temples were built with four
equal sides, but only one entrance. He presides over
production. He is the keeper of earth, sea, and sky; the
 guardian deity of gates, on which account he is
commonly represented with two heads, because every
doors looks two ways; and thus he, the heavenly porter,
can watch the east and west at once without turning. (Ovid, Fast., l. 140.) He usually carries a key in his left hand and a staff in
the other. (ib, 99.) His temples at Rome were numerous. In
war times the gates that even allowed open for this
door were always open; in peace they were closed to the
wars within (ib. 124); but they were shut once only between
the reign of Numa and that of Augustus. In reference to
this attribute he has the epithets of Chusius and Patileucis,
the shutter and opener. All his attributes, numerous and
complicated as they are, appear to have reference to this
motion of opening and shutting, and are explained, by
those who see in Janus a modification of the sun, in reference to
the phenomena of day and night, and the pervading vivifying
influence of the solar rays. As to the probable origin
of the word Janus, see the article DIANA.

JAPAN is an empire in Asia, which consists of an
unknown number of islands of different dimensions. These
islands may be considered as forming the western boundary
of the Pacific between 31° and 45° N. lat.; but the
Japanese settlements on the island Tahoko, or Tarakai,
better known by the name of Sakhalia, seem to extend as
far as 56° 55' N. lat. Johann Reinhold Forster says, that the
continent of Asia is a closed sea, the Sea of Japan, which at its southern extremity is united to the
Tong-Hai, or Eastern Sea of the Chinese, by the Strait of
Corea, and at its northern with the Sea of Okhotz, or Ta-
arakai, an unfrequented sea. Corea, which is an island
between the two, has a length of 1295 miles, and a width
of 150 to 200 miles, and consists of hills and high
mountains. The Sea of Japan is joined to the
Pacific by several straits, which divide the Japanese
islands from one another. The most remarkable is the
Strait of Simosekoi, or Terek. It is a large island of Japan and
Yesso. Japan is situated between 129° and 150° E. long.
from Greenwich. It is divided into Proper Japan and the
dependent islands.

Proper Japan consists of three large islands, Kiossoo,
Sitokof, and Nipon or Nifon, which are surrounded by a
great number of smaller islands. Kiossoo, the most west-
ern, may be about 200 miles long, with an average breadth
of 80 miles, which would give it a surface of 16,000
miles, nearly equal to that of the island of Sardinia. On its west-
ern coast are numerous small islands, which are connected
by a narrow body of land. These islands have a population
ing, by far the largest, and that of Omoora, the
north of it: at its southern extremity is the Bay of Kang-
osa. Kiossoo is separated from Sitokof by the Boong
Channel, which is
hardly be said to separate the
Strait of Simosekoi. Sitokof may be 150 miles long,
with an average breadth of 70 miles; it probably contains
more than 10,000 square miles, and is much larger than
the island of Corsica. The long strait which divides it
from Nipon on the north is in some parts hardly more than
100 miles wide; but about the middle a large bay enters deeply
into the island of Sitokof. The eastern extremity of this
island is separated from Nipon by the Bay of Oseca, which
contains the town of Avast. Nipon, the largest of the
principal of the Japanese islands, has the shape of a cun-
or, as Kämpfer says, of a jawbone. Its length, measured
along the middle of the island, exceeds 900 miles, and its
average width may be estimated at more than 100 miles:
surface may therefore cover an area of about 100,000
square miles, or considerably more than that of Great
Britain. Its largest bay is along the southern coast, as
Oseca Bay, Mii Bay, and Yedo Bay.

The dependent countries are the large island of Yesso,
which is the interior rises to a height of 5000 feet. Many of
them are so rapid that no bridges can be built over them,
and they are not passed without danger. Several others are less
rapid, and though they cannot be navigated, timber and
sugar can be floated down from them. A continuous
chain of mountains is the result of some miles from the
sea. The most considerable and important of those which are
known is the river Yedogawa.
in Nipon, which rises in the lake of Oitz, a sheet of water sixty miles in length but of considerable width. After leaving this lake, the river traverses a plain which extends from it to the harbour of Osaka, and in all this course it is navigated by river-barges.

We are of course very imperfectly acquainted with the climate of Japan, the meteorological observation made by Thunberg is the only one existing for one year. But we may at least conclude that the southern part seems to resemble in many points the climate of England. In winter it does not freeze and snow every year, though this generally the case: the frost and snow, when there is any, last only a few days. In January, 1776, the thermometer rose at Nagasaki to 59° Fahn., but it was considered a very mild winter; in August it rose to 98°, and that was considered as the average heat of the season. The heat would consequently be very great but for the refreshing rains, which fall during the whole of the year, as well during the night from the east. The weather is extremely changeable, and rains are abundant all the year round; but they are more heavy and frequent during the summer, or rainy season, which occurs in June and July. Storms and hurricanes seem to occur frequently, and the descriptions of them in Kämpfer and Langsdorff are truly terrific. Thunder-storms are also common, and earthquakes have successively destroyed a great part of the most populous towns. Only a few spots appear to be exempt from these terrible phenomena. It is observed by Kämpfer that water-spouts are nowhere of such frequent occurrence as in the seas enclosing Japan.

It is evident that the part of the world is agriculture carried to a higher degree of perfection than in Japan. All the declivities of the hills to the top, except those which are too steep, are formed into terraces or beds of different width, according to the slope, and these terraces are cultivated with the utmost care. Here, as in China, the greatest attention is paid to the collection of manure. The raising of rice is the principal object, but wheat, barley, and rye are also cultivated, though to a much smaller extent. Indian corn is not enumerated among the grain-crops of Japan. As the Japanese use no butter nor tallow, they cultivate Rhus succedaneum, Sesamum, and Brasica orientalis; the oil from the two last sorts serves for dressing victuals, and that of the first is used for their lamps. The seeds of Panicum verticillatum, Holcus oryzae, or millet, Panicum Cortis, and Cynosurus Coracanus, are much used as food for man and beast, and cultivated extensively in some districts. Of esculent roots chiefly batatas and potatoes are raised. Other vegetables are turnips, cabbages, carrots, radishes, lettuces, melons, pumpkins, cucumbers, and gourds. Different kinds of beans and peas are raised in astonishing abundance, and several provinces have obtained a name from producing them in superior quality. Among the beans are the daidian beans (Vigna angularis), from which the Japanese make the liquid which is known in England under the name of soy. The plantations of the tea shrub are extensive in some districts, but their produce is inferior to that of China, and does not receive for exportation. Ginger is also cultivated, and the pepper shrub is planted for the consumption of the country. Their orchards are stocked with the fruit-trees of southern Europe, as oranges, lemons, medlars, figs, grapes, pomegranates; and they produce also chestnuts, walnuts, pears, peaches, and cherries; apples are not grown by Thunberg. The raising of cotton and silk is objects of great importance, and the Broussonetia papyrifera is planted extensively, its bark being used for making cloth and cordage. It is also much employed in making cloth; the cordage is made from different kinds of nettles. Besides these different plants they plant the varnish-tree (Rhus vernicifera), from which they make excellent varnish for their furniture, the cedar (Cupressus japonica), the bamboo-cane, and the ramphor-tree (Laurus camphora), though all these trees are also found in a wild state. They extract a blue dye-stuff from these three kinds ofPolygonum, chinenses, barbatum, and asclepias. The raising of rice is considered by Thunberg, from whom we have also taken the technical botanical names.

The horses are of a middling size, but strong. The number of horses is only used for the saddle and by the princes. Thunberg is of opinion that there are, in Nipon, as many horses kept in the whole empire as in one single town in Sweden. Horned cattle are still less numerous. The Japanese do not use either their flesh or their milk, and they are only kept for drawing carts or for ploughing such fields as lie almost constantly under water. Butfoes and sheep tobe much more numerous. The sheep are mentioned by Thunberg; but he expressly observes that sheep and goats are not kept. Swine are only found as Nagasaki, where they have probably been introduced by the Chinese, as the Japanese do not eat them. Fowls and ducks are not very common, and are only kept for their eggs, of which the Japanese are very fond. Of wild animals only hares are mentioned by Thunberg; but states, on the information obtained from the natives, that bears, and other animals occur in the eastern and northern part of Nipon. Though the Japanese do not make much use of the flesh of domestic animals as food, they derive abundant provisions from the sea. Fish is extremely plentiful, and numerous villages are only inhabited for the purpose of fishing. The Japanese catch the fish from the coast, and several other kinds of shell-fish, and many fanifile exclusively on them. Even the flesh of the whale, of which some kinds are rather numerous along these coasts is eaten.

Japan abounds in mineral wealth. Gold seems to be very plentiful in several provinces, but is not worked everywhere. The government seems to use corrective means to prevent such undertakings. Silver is not abundant; but copper, lead, and zinc are brought to the chief places and supplied to the most important article of export. Iron is said not to be common, but still there is enough for the consumption of the country. Some tin-mines are also stated to be worked. Salt in great quantity is made in several districts along the southern coast, which is also exported. Other minerals only fine clay is mentioned, which is used in the manufacture of china; the porcelain is equal, if not superior, to that of China. The sea gives pearls and ambergris.

All travellers speak of the populousness of the country and the extent of the villages, which frequently occupy in English miles and more in length. In some more fertile districts they are so close to one another as to form near one continuous street; as, for instance, those which extend from the harbour of Osaka to Meaco. The smaller towns commonly contain five hundred houses, and the larger two thousand and upwards, and though they have generally only two stories they are occupied by a comparatively large number of persons.

The island of Kiososio is extremely well cultivated, and generally fertile, with the exception of its eastern coast bordering on the Boong Channel, which is mountainous, barren, and comparatively thinly inhabited. In several places there are considerable manufactories of cotton cloths, silk goods, and paper. The best known towns of importance are Nagasaki, Sanga, and Kookoo.

Some few miles from Nagasaki, the town announced Nagasaki, the only place open to foreigners, lies on a peninsula formed by the deep bay of Omoora, in 32° 45' N. lat. and 129° 15' E. long. It harbour is spacious and deep, extending in length about a mile with an average width of more than a mile. At its entrance is the small islet of Kepo, on which is built its houses, 22 fathoms deep, but it grows shallower as it proceeds inward, so that opposite to the town it has only a depth of 4 fathoms; so far it runs north-east, it then turns north, and has less depth. The town is built on its eastern shore, in a narrow valley which runs eastward. It is three quarters of a mile long and almost as broad, and enclosed by steep though not high hills. There are some good houses in the town, as the palaces of the two governors, and those of the princes and rich persons of the empire, but especially the temples, which were 62 in number, and without and without the town, in the time of Kämpfer (1692). There are some manufactures of gold and silver. The population may amount to 15,000 or 18,000 souls. It is one of the five imperial towns of the empire.

Sanga, situated on a fine and well watered plain at the northern extremity of the large bay of Simbarra, the capes of the peninsula of Eise, is a very large and populous town with canals and dikes to prevent the tide from running through in the wide and regular streets. It has considerable manufactures.

Kookoo, built near the entrance of the Strait of Simbarra, is considerably frequented by the intercourse between Japan and China. This town, which in the time of Kämpfer was much decreased, was found in a thriving state in 1775, by Thunberg.
II. The island of Sitkoff has not been visited by Europeans. According to a Japanese geographer, cited by Kämpfer, it contains many mountainous and barren districts, and is therefore called the island of the barren mountains.

III. Nipon, or Nifon, which constitutes the main body and strength of the empire, is, as far as it has been seen by Europeans, well cultivated and fertile, with the exception of the barren tracts of moderate extent. It contains the largest inhabited number of its inhabitants, lords, and noblemen; and this island is considered the best. The most important towns visited by Europeans, along its southern side, are:

- Simonsoski, built at the foot of a mountain, on the shore of the narrow strait which bears its name, and which is only one mile and a half wide. It is not very large, but it carries on a very active coasting trade with all the districts to the east of it.

- Mt. Ichigaya, on the north-eastern coast of Sitkoff, is not large, consisting only of about 600 houses; but its harbour is very safe, being well defended by a mountain running out westward from the mainland, for which reason it is resorted to by the coasting vessels, of which frequently more than 100 are anchored there. It is noted for its tanneries, where horse-hides are tanned in the manner of the Russian leather.

Osacca, one of the five imperial towns, and the most commercial in the empire, is situated on the Gulf of Osacca, on the banks of the river Yedogawa, which, near the town, divides into three branches, and, before it falls into the sea, into several more. The middle or southern coast is extremely narrow, and for some distance is not navigable. From its mouths, as far as up the town and higher, there are seldom less than a thousand barges going up and down. Several navigationals, which carry their water from the river, traverse the principal streets of the town, and serve as means for conveyance of goods. The banks of the river and of the canals are of freestone, coarsely hewn, and formed into ten or more steps, so as to resemble one continued staircase. Numerous bridges, built of cedarwood, are over the river, and the streets are covered with large dimensions, and beautifully ornamented. The streets are narrow but regular, and cut each other at right angles; though not paved, they are very clean. A narrow pavement of flat stones runs along the houses for the convenience of foot-passengers. The houses are not above two stories high, and built of wood, lime, and clay.

At the north-eastern extremity of the city is a large castle. The population is very great. According to the exaggerated accounts of the Japanese an army of 50,000 men may be collected in this city, and its inhabitants are divided into two classes. The first consists of very wealthy men, especially the merchants, artists, and manufacturers. The Japanese themselves call Osacca the universal theatre of pleasure and diversion; and plays are acted on the stage of the antient religious order. The quarter about the best saké, a kind of strong beer obtained from rice, is made, and exported into the other provinces.

South of Osacca, on the shores of the same gulf, is the town of Saki, an imperial town, which however has never been visited by Europeans.

Meno, or Kio, the residence of the ecclesiastical emperor, or Dairi, is about 20 miles from Osacca, and contains, in the time of Kämpfer, according to a census, more than 80,000 inhabitants, besides the numerous court of the Dairi.

It is nearly four miles long and three wide. The Dairi resides on the northern side of the city, in a particular ward, consisting of 12 or 13 streets, and separated from the city by walls and ditches. On the western part of the town is a strong castle, built of freestone, where the Kubo, or secular emperor, resides when he comes to visit the Dairi.

The streets are narrow, but regular, and always greatly crowded. The houses are like those at Osacca. A confectioner and a merchant, besides the numbers of courtiers, in whose houses, and whose offices, all sorts of goods which they contain are astonishing; at the same time it is the centre of science and literature, and the principal seat of the learned, and that of the chief general of the empire, who is invested by the emperor with supreme authority over all officers of government. The town is united by a wide canal to the river Yedogawa, which runs directly between the two towns.

Kwano and Mia are two very considerable and thriving towns on the Gulf of Mia, each containing 2000 or 3000 houses, and carrying on a considerable trade with the neighbouring districts.

Yedo, the capital of the empire, is situated at the northern extremity of the island of Yedo, and is therefore called the island of the Yedo, or the island of the same name. According to the Japanese it is about ten miles long, seven wide, and is nearly 30 miles in circuit. All travellers agree that it is the largest and most populous town in the empire, but no one of them ventures to state the proportion of its inhabitants. It is described as a city well built through the town and sends off a considerable arm, which encloses the imperial palace, or that of the Kubo, or secular emperor. There are several good bridges over the river, and the principal town is called Nippon, or New Japan; and from it the mile-stones are counted, which are erected along the principal roads that traverse the empire.

Yedo is not so regularly built as Meaco, and the private houses do not differ from those of Osacca; but as the families of the antient princes, lords, and noblemen, are obliged to reside at the court the whole year round, the town contains a great number of fine palaces, though they are not above one story high. Rows of trees are planted along the numerous canals which traverse the town, to prevent the fires from spreading; which, however, is a very common sight.

Yedo is not less famous for its manufactures than Meaco. The palace of the Kubo is built in the middle of the town. It consists of five palaces or castles, and some large gardens behind it, and is more than eight miles in circumference.

IV. The island of Yedo is very imperfectly known. On its western coast are high mountains. Its eastern coast is very thickly wooded with pine trees. In the southern coast there are many small islands. In the Straits of Sangar are two considerable towns, Kokadake and Matsma. The latter is the capital, and the residence of the governor.

The Japanese are not so long as the Europeans; but they are well made and have small limbs. Their eyes show their Mongol origin, not being round, but oblong, small, and deeply sunk in the head. Their hair is black, thick, and shining, and their noses, although not flat, are rather thick and short. Their hands are large, and they bear an appearance to resemble most the inhabitants of Corea, and the Ainon on the island of Tarakai; but, according to appearances, they have derived their civilization from China. In manufacturing industry and in scientific knowledge they seem to be nearly equal to the Chinese, and in some articles the Japanese are superior. The Chinese themselves value the real Japan ware above their own inferior manufactures in lacquer. Their manufactures in metals, silk, cotton, china, glass, and paper, and their cabinet-work, are highly esteemed. They also have the excellent watches and clocks, and a late traveller (Meylan) mentions telescopes and thermometers. The fine arts are much admired, but the Japanese taste differs from ours, and is like that of the Chinese. The Japanese are proud of the antient empire, and as the spring of the sun, the founder of the antient royal family and of the empire. But the greater part of the inhabitants have embraced Buddhism, which seems to have been introduced from Corea at a very remote epoch. Between the two religions, a considerable number adhere to the doctrines of Confucius, the Chinese philosopher, and are called Syvoto.

In the seventeenth century the Roman Catholic religion was introduced by the Portuguese, and made great progress, but it was eradicated by a civil war and great persecutions, and entirely forbidden. All travellers who have been acquainted with both nations prefer the Japanese to the Chinese. They find them less cowardly, proud, cunning, and deceitful, and of a more manly and open character. In their honesty and industry both sexes excel.

The Japanese show a great desire for knowledge, and their institutions for instructing the lower classes seem not to be inferior to any on the globe. Indigence and pauperism are said to be almost unknown.

The government is despot, but the emperor himself is considered as subject to the laws, which are of long standing and cannot easily be changed. Formerly, the Dairi and Meaco, the seat of the Sinto religion, was the only sovereign and military power. An emperor or chief general acquired gradually such an authority, that in 1585 he deprived the Dairi of his influence, leaving him only the supreme administration of ecclesiastical affairs; but he has legal force, and has been previously sanctioned by the signature of the Dairi.

The descendants of the chief general now govern the empire.
under the title of Kubo Soma. The constitution of the Japanese empire is materially different from that of the Chinese in its hereditary nobility, dignitaries, and officers. The government is divided into provinces, which are divided into the ancient feudal system of Europe. The nobility, or hereditary governors of the provinces and districts, are called Daimio, or High-named, and Stomio, or Well-named. The first-named govern the provinces, and the Siomio govern the districts. The population of the year 1690 was reckoned at 27,000,000. Their provinces to watch over their government, and six others they must pass at Yedo, but their families must remain in that town the whole year round as a security for the loyal conduct of the governors. A population of the country is divided into eight classes—the princes or governors, the nobility, priests, military, civil officers, merchants, artisans, and labourers, by which we suppose agriculturists are meant. All these dignities, offices, and titles are hereditary; a respectful tend to keep society quiet, though it may also prevent some improvement.

The Japanese females have almost as much liberty as European females; most of them can play on a musical instrument which is like a guitar.

The inland trade is very considerable. The coasting trade is much favoured by the great number of small harbours, and the interior communication by well-planned and well-constructed roads, which are always well-kept, and people. Most of the roads are wide, and ornamented with lines of trees. The foreign commerce is limited to the Dutch and Chinese. The Dutch have a factory on the island of Desima, which is connected with the town of Nagasaki by a road of about 200 miles. All communication with the inhabitants, it is planked on all sides, and has only two gates, one towards the town and the other towards the harbour. These gates are strictly guarded during the day, and locked at night. In this enclosure are the storerooms, the hospital, and some houses built of wood and clay and covered with tiles. Only one ship is at present annually sent from the island of Java; it arrives in June and returns toward the end of the year. The Japanese export principally copra, carved with various designs, with some cloths, silk-stuffs, rice, sake, and soy. The principal articles of importation are sugar, elephants' tusks, tin and lead, bar-iron, fine chintzes, Dutch clothes, shalloons, silks, cloths, and tortoiseshell; with some saffron, Venice treacle, Spanish liquorice, watches, spectacles, and looking-glasses. The Japanese copper does not reach the European market, being disposed of on the coast of Coromandel to great advantage. The Chinese, like the Dutch, are shut up in a small island, but they are permitted to visit a temple in the town of Nagasaki; their trade is much more extensive. About seventy junk arrivals annually from the ports of Amoy, Nanking, and other places, but as the Chinese have no factory, they cannot remain during the winter in the harbour of Nagasaki. The Chinese junks arrive at three different times in summer.

In the time of Kämpfer there was still some trade carried on with Corea and the Loo-Chew Islands, but this trade had ceased at the time of Thunberg (1775), and Siebold (1830) confirms this fact. (Ambassades Memorables, &c., by Jacob van Meurs; Kämpfer's History of Japan; Charlovix, Histoire et Description générale du Japon; Thunberg's Travels in Europe, Africa, and Asia; Adventures of Capt. Golovnin; Siebold's Japan; Extracts from Fischer and Meylan; Journal of Education, vols. ii. p. 376, x. p. 164.)

Japanning is the art of producing a highly varnished surface on wood, metal, or other hard substance, sometimes of one colour only, but more commonly figured and ornamented. The process has received its name from Japan, and all articles of Japan, whence articles so varnished were first brought to Europe; and since the manufacture is also extensively practised by the Chinese, Siamese, Burmese, and other nations of the extreme east of Asia, among whom it was suggested most probably by the possession of a five-minutes, and stills with little pretensions, exceedingly well adapted for the purpose, and which hardens better than those prepared in Europe.

The appearance of japanned work is as various as the taste and fancy of the artists employed in it. Sometimes it is adorned with gold or silver, with a golden painted border, or it is imitation of marble, of fine grained or rare wood, or of tortoiseshell; sometimes a drawing, in which high finish brilliant colour, and showy patterns are more sought after; and occasionally fine copperplate engraving. In all cases the work is highly polished and varnished.

Japanning is applied to ladies' work-boxes and work tables, to toilet-boxes, cabinets, tea-caddies, fire-screens, tea-trays, bread-baskets, snuff-boxes and trays, candlesticks, wash-hand-stands, tea-trays, work-boxes, &c. A good deal of common wood painting is also called japanning, which differs from the ordinary painter's work chiefly by using turpentine instead of oil to mix the colours with. Bedsteads, dressing-tables, wash-hand-stands, work-boxes, and similar articles of furniture are done in this way.

Three processes are usually required in japanning; laying the ground, painting, and finishing. In addition to these processes, whenever the matter to be japanned is not prepared in the circuits, it is neither so heavy or soft or coarse, it is sometimes prepared or primed before any of the proper japanning processes are applied. It must here be observed, that almost every workman has his own peculiar modes of working, and his own receipts for making and mixing his varnishes; and only one very general idea can be given of the way in which the various operations are performed.

The preparatory mixture or priming is composed of some gum, or sizing, mixed with water; and this is laid on the center's glue, which is well mixed up with as much chalk or whiting as will serve to give it a body sufficient to coat the colour and grain of the wood on which it is laid; it is then put on with a brush like paint, and when perfectly dry when a little is sprinkled on by a day or two, or by creaming the atmosphere, it must be brought to an even surface by rubbing with rushes, and then be smoothed by a wet rag. To best japanners disapprove of the use of priming, because a smoothness is very essential to the firmness of the varnish laid on it; they use no substances which are themselves unfit for receiving a varnish, or which they are unable to bring to a sufficiently smooth surface. For wood hard and fine enough to receive a varnish without priming, with a mixture of gum, they recommend that which is necessary is a coat of two varnish. In all these processes it is a rule to allow a day or two to intervene after each operation, that the work may be thoroughly dry.

When the work is prepared, the ground must be laid e this is either all of one colour, or marble, or done in imitation of tortoiseshell. The grounds are the ordinary paints mixed with varnish, which are laid on smoothly with a brush: when thoroughly dry they are varnished, and after being rubbed with a stone; and, if the ground be white, with putty or sand and oil. The varnish used is either copal, or else it is composed of seed lac, or of gums animi and mastic; the varnish is considered by many workmen the best as being much smoother. It is unfortunately the case in some of the more delicate grounds, to which it communicates a yellowish tinge; from this defect the gum varnish is free, but it is deficient in hardness; occasionally a mixture of the two is used, and some workmen prefer copal varnish to either gum or lac.

The mode of laying the grounds varies greatly; the oil works on japanning are tediously minute in describing the various processes to be followed, detailing the number of coats, or the mixture of the colours, &c.; but it should be laid down that, in all cases, it should be allowed to dry after each; and different proportions of colour and varnish are fixed as necessary to be used in each different operation. The mode now generally in use is to lay on one or two thick coats of colour mixed with varnish, then to varnish three or four times, and afterwards to dry the work thoroughly in a stove. The colours are flake-white or white-lead, Prussian-blue, vermillion, Indian-red, king's-yellow, verdigris, and lamp-black; inter-colors are mixed to be laid on, and these, and an imitation of tortoiseshell is produced by varnishing, and a varnish of linnedoil and varnish. When a particularly gorgeous appearance is desired, the ground may be laid entirely in gold. This is produced by going over the work with japanner's wash-leather, when dry; this is then laid on till the finger, but still soft and clammy, is covered with gold-dust, applied on a piece of soft wash-leather. Another metallic dust may be laid on in the same way. Many varnishes are given for preparing the japanner's gold, but nearly all agree in making linnedoil and gum animi the
basis of the composition. A curious and very striking mode of laying the ground, called the dip, was formerly much practised: it was done by dropping small quantities of colored varnish in a trough of water, over the surface of which they were immediately spread and often beautiful compositions; into these the article was dipped; the colour was thus transferred to the work, and when dried was varnished and polished in the usual manner. The work when thoroughly dry will now be ready for polishing. The performance of this part of the process is rather an art than a workman, though, as before stated, showy and brilliancy are chiefly required in japanning, and bright colours with gold and bronze dust are largely employed. The colours are tempered with oil or varnish, and metallic powders added on with gold size. Copper-plate engravings or wood-cuts may also be executed in japanned work; in this process the engraving is first printed upon fine paper which has been previously prepared by a thick coat of gum-water; when the print is perfectly dry, it is applied with its face downwards upon the Japan ground, covered with a thin coat of varnish; the paper is then moistened on the back with a sponge dipped in warm water, which in a few minutes dissolves the bag or gum, and makes the paper which is thus loosened is gently taken away, leaving the print on the work. Indian ink or other drawings upon paper may be transferred to the japanned ground in the same way. A more expeditious and very effectual mode of transferring engraving is to print upon a smooth black layer of composition, glue, treacle, and whitening, which will receive an impression as perfectly as a sheet of paper: the composition, which is elastic and very flexible, to be immediately laid down upon the japanned surface, will thus receive as good an impression as if it could have been itself applied to the engraving.

In whatever manner the work has been painted or printed, or all addition to the plain colour of the ground has been dispensed with, nothing remains but the finishing. This is a very simple process: the workman chooses one of the before-named varnishes, and passes it over the work with a brush several times, until he judges the coating to be thick enough to bear the polish. It is an important precaution to begin the varnish upon the work, which is thoroughly dry, and to dry perfectly each coat before going on a succeeding one. A hot stove is used in the best establishments to aid in drying the work. When thick enough, the varnish is polished by rubbing it with a rag dipped in finely powdered tripoli or rotten-stone; towards the end of the operation a little oil is also applied to the work, and the work is completed by rubbing with oil alone, and then clear off the powder or any other impurity.

JASPER. [YAROSLAV.] JASHER, BOOK OF (יַשֶּר). or 'the book of the uprightness,' is twice referred to in the Old Testament as a work of authority. (Jos. x. 13; 2 Sam. i. 18.) Many important passages of Scripture are quoted in the scriptures of this book; but we have no means of arriving at any satisfactory determination on the subject, since the work appears to have been lost before the time of the Babylonian captivity. Some critics have imagined it to be the same work as the book of Judges, which is evidently correct from the quotation in the book of Samuel; others, such as Bishop Lowth and Gesenius, have maintained that it was a collection of national songs.

In the year 1751, a Philadelphia gentleman, Mr. Hume, published a pretended translation of the book of Jasheer, which so much as to have been translated from the original Hebrew by Alcin of Britain. This work was republished at London in 1829. An interesting account of this literary forgery is given in Horne's 'Introduction to the Scriptures,' vol. ii., pp. 132-139.

JASMINACEÆ, a natural order of Monopetalous ex-ia, deriving its name from the Jasminum, which forms the genus. It is a large order of that class with regular diandrous flowers, and is only to be misled for Oleaceae, which have a valuate coroll, and which are otherwise scarcely different. Only four genera of this order have yet been discovered, the principal being Jasminum itself, which bears some resemblance to Oleaceae, sometimes fragrant, sometimes scentless, erect or twining, inhabiting the hot or temperate regions of Europe, Africa, Asia, including New Holland, but hardly known in America. The order is characterized by having opposite or alternate, simple or compound, exalitipulate leaves; monopetalous flowers, the segments of whose corolla are imbricate, and seldom correspond with those of the calyx: 2 stamens, and a superior 2-celled feebly-seeded ovary. The species are chiefly valued for their fragrance; a few species have been regarded as bitter and astrigent.

JASON. [ARGONAUTS.] JASON (ΘΕΟΣ ΑΡΓΟΝΟΥ). JASPER. [SILICIUM.] JASSA, a genus of Amphilopus crustaceans, established by Dr. Leach. The general characters resemble those of Corophium, Latr.; but differ from them as well as from those of Polycerus, Leach, in the considerable size of the bands of the four first feet, which are oval; those of the second pair being the greatest, and armed with teeth more or less numerous on the internal border. Eyes not projecting. Dr. Leach records two species, one, Jassa pulchella, from the south coast of Cornwall, where it was found in the middle of sea-weed; the other, Jassa pelagic, found near the Bell Rock, Scotland.

JASSEY, [MOLDAVIA.] JATROPHA, a genus of plants inhabiting the tropical parts of the world and belonging to the natural order Euphorbiaceae. It contains among its numerous species the Jatropha or Janhipa Manihot, a Brazilian and Guayana plant, whose fascia forms a well known nutritious substance, called Casuarin, when prepared in one manner, and Topica in another state. This secretion is analogous to the meal in the Potato, the Yam, and the Batatas, but it is mixed naturally with a highly dangerous juice, which it is necessary to remove by washing and evaporating before the fascia is fit for food. When properly prepared, this substance is extremely nutritious, and forms the principal part of the vegetable diet of the poorer classes in South America.

JAUJIN. [HINDUSTAN, p. 212.] JAUNICE (from jaune, yellow) is the name given to those diseases in which the excretion of the bile being prevented, it is retained in the blood, or reabsorbed, and being diffused throughout the system, gives a yellow colour to the skin, and all the other tissues and secretions.

The name is very indefinite, because the cases in which the separation of the bile is prevented are various. Everything, for example, which obstructs the main trunk of the bile-ducts, as gall-stones (Calcuius, Bilary), or other foreign bodies filling its canal, certain morbid alterations of the liver or duodenum (Intestines), or of the duct itself, tumours and enlargements of adjacent organs, will alike mechanically produce jaundice, though their other symptoms differ widely. Again, it is often a symptom of inflammation of the liver, as especially in yellow fever, and of inflammation of the duodenum. But the most frequent cases are those which do not appear to be the consequence of any organic disease, but are accompanied by the
symptoms of general disorder of the digestive organs, as nausea or vomiting, thirst, and loss of appetite, confined or irregular condition of the bowels, headache, and general unquietness. These cases generally come on suddenly, as a sequel of common diarrhoea, or in the dyspeptic and those of a sedentary habit, or whose bowels have been long inactive. In the northern countries, what prevents the excretion of the bile; sometimes it is separated from the blood in too viscid a form; sometimes mucus appears to obstruct the duct; in many cases there is probably spasm of the duct, as in those which occur after violent fits of cough or other mental affection; and in some a larger quantity of bile appears to be formed than can be conveyed away with proportionate rapidity.

It is impossible that any one mode of treatment should be equally efficacious in all symptoms depending on such varied causes. Where the obstruction is mechanical, the jaundice is of course curable only by the removal of its evident cause; and in inflammation of the liver it is but a symptom of a more important disease, which the treatment must be directed to. In the more common cases, which, as distinguished from those, are sometimes called functional, the treatment should consist chiefly of small doses of mercury, and active purgatives containing calomel or neutral salts. When the bowels and skin should be used, if there be any spasmodic pain of the right side; and leeches or bleeding, if any inflammatory pain or tenderness be felt. A mild diet and the abstinence of all stimulants drinks or food should be strictly observed.

JAVA, one of the Greater Sunda Islands, the third in extent, but the first in importance, is situated between 5° 32' and 8° 4' S. lat., and between 105° 11' and 114° 13' E. long. On the south and west it is bounded by the Indian Ocean, on the north-west corner of the island forms with the most southern extremity of the island of Sumatra the Straits of Sunda, which at one place are only four miles across, and unite the Indian Ocean with the Java Sea. The last-mentioned part of the Indian Ocean was long the scene of a very lively traffic of Java, and at the most eastern extremity of the island it is again united with the ocean by the Strait of Bali, which in the narrowest part is only two miles wide. The length of Java from Java Head on the west to East Point (Coast Hook) is 666 miles; its breadth varies from 56 to 133 miles. The area is estimated at 50,000 square miles, or about that of England.

The island of Madura is commonly included in Java, from the north-eastern part of which it is divided by the Strait of Madura, which in one part is only one mile broad. Madura is 91 miles long, and 31 miles wide in the widest part.

Surface and Soil.—The southern coast in its whole extent is high and steep, rising in many places perpendicularly to an elevation of 80 or 100 feet, and sometimes to a height of much higher. It runs in a continuous line, with few indentations, and those not deep. Consequently there are few places which have good anchorage, and as it is exposed to the full force of the wind, it is not much visited by shipping. Still a few good harbours occur; the best are Chelachap, about 106° E. long., and Pachitan, about 111° E. long.

The hill-country, which is contiguous to the southern coast rises rapidly as we advance inland, and probably attains towards the middle of the island a mean elevation of more than 1000 feet, where it extends in elevated plains with an uneven or hilly surface. This hilly country does not extend to the whole breadth of the island, except at the western extremity as far east as Bantam, which is part of the Java peninsula, which comprehends the most eastern districts east of 112° 30'. This elevated region is traversed by numerous ridges of hills, probably rising to 2000 or 3500 feet above the sea level, and running mostly in the direction of the island's length. On these ridges a considerable number of peaks rise to a great elevation. It is stated by Raffles that there are thirty-eight of such peaks. They have all a brassy appearance, and gradually diminish in size as they approach the summit, which has always the form of a cone. They are all volcanic in origin.

Indications and products of their former eruptions are numerous and unequivocal. The crater of several are completely obliterated; those of others contain small aper- tures; and many are regularly discolored and smoking. Many of them have had eruptions during the present century, which have caused great loss of property and life.

The highest and most remarkable of these volcanic peaks are the Pananjero, south of Buitenzorg, more than 4600 feet high; Mount Gede, south-east of the former, rising to 9898 feet; the Dishirmai, south-west of Cheribon, more than 8000 feet high; the Gede Tegal, near 109° long., which probably attains between 11,000 and 12,000 feet; and Mounts Simfero and Sumbing, called the Two Brothers, between 119° and 120° long., which, according to some, rise up to 12,000 feet. Merbido and Merapé, lie in a direction almost south and north across the hilly region near 110° 30' E. long. Near the eastern peninsula is the Arjuna, 16,514 feet high, and is considered as the highest mountain in Java. The hilly region of Sumatra or Semiru, probably the most elevated of these peaks. At the north-eastern extremity of the island near Cape Sedano is the elevated volcano of Telagawurung.

The hilly region contains some extensive plains and valleys, but those are very irregularly situated on hills which connect the peaks. The largest of these elevated plains is that of Bandung, which seems to occupy nearly the whole tract from Mount Gede on the west to Mount Gede Tegal on the east. It is of great fertility, though somewhat inferior to the two valleys which lie contiguous to it on the east—the Vale of Bagunyars, traversed by the beautiful river of Seraya, and the Vale of Kodih, on the banks of the river Elo. East of the last-mentioned vale is the elevated plain of Cheribon, which is situated on the eastern coast, and which habitually enjoys a very good degree of fertility. The elevated plain of Kediri, traversed by 112° long., is equally extensive and fertile. The eastern peninsula, whose surface is mostly occupied by peaks and high ridges connecting them, has no alluvial plains and close valleys.

The elevated and hilly region terminates to the north in rather a steep slope, and between it and the Java Sea extends a flat country which descends imperceptibly from the foot of the mountains to the very shores, where it terminates in some places in swamps. This tract, which is mostly alluvial, is widest towards the west, and occupies nearly one-fourth of the width of the island, or about 40 miles, between Bantam on the west and Cheribon on the east. Between these two points the coast is nearly 6 miles across. This portion of the low lands is not equal in fertility to the inland districts. In Samârang are the flats of Demâk, which extend between the elevated region and the mountains of Japara; they were once an extensive swamp, and are hardly inferior in fertility to any part of the island. East of these flats and between the same mountains are the low lands of Jipang and Surabâya, which terminate on the strait and gulf of Madura with the delta of the Surabaya river; the delta is also distinguished by its fertility. The lowest lands of Demâk, Jipang, and Surabâya divide the mountains of Japara and some lower ridges from the elevated regions. The mountains of Japara, which contain a peak of considerable elevation, occupy the peninsula of Japara, or 110° E. long., and are more than 30 miles in extent. The isolated mountain-system is separated by a deep valley, covered with alluvial soil, from a low ridge which occupies the whole tract of the coast between Cape Lerang and Cape Ceribon, and perhaps 10 or 15 miles inland.

The northern coast is lined by numerous small islands, and is marked by many projecting points and headlands. According the harbours are numerous. But the whole coast affords anchorage at nearly all seasons of the year, and vessels of any burden can approach all the principal stations at a convenient distance for the exchange of their merchandise. The sea being generally smooth and the weather moderate, the native vessels and small craft always find sufficient shelter at the change of the monsoon by anchoring in some island, or lying up in the deep gulf on the land. Though in general difficult of entrance on account of their bars, are for the most part navigable for such vessels as far up as the maritime towns.

The soil of Java is generally deep and rich. The best soils are the alluvial soils along the beds of the rivers, and on the slopes of the largest mountains; the worst are on the declivities of the lower ranges. But though there are these varieties, the general character of the soil is that of great fertility; and it is the region of the coffee plant, superior to the western. The neighbouring countries, especially Sumatra and the Malayan peninsula, cannot be compared with Java in this respect. The best soils annually produce two crops, the first of which is drawn out manure, and even the poorest remunerate the labour of the human hand.

Rivers.—Java is watered by numerous rivers, but few of them have a considerable course on account of the compa-
native narrowness of the island. There may probably be fifty streams, which in the wet season bear down rafts loaded with timber and other rough produce of the country. Five or six are navigable at all times to a distance of some miles from the coast. The rest, in number many hundreds, of the immediate neighborhood, are used to irrigate the fields, and are joined by the Madjan. From this point to its mouth its course is calm, regular, and steady. It enters the Strait of Madura by two mouths at Gresek and Sidayu. From Sura-kerta to Gresek it is stated to run 356 miles, measured as the crow flies, which is, as stated above, the distance only is 140 miles. In this part of its course there is no impediment to navigation. During the rainy season it is navigated by boats of considerable size, and except in August, September, and October, and in some uncommonly dry, it floats down boats of middling or small size during the whole year, from a considerable distance above Sura-kerta.

The Kediri or Surabaya River forms nearly a circle, and its source and mouth are situated almost in the same latitude. It rises at the base of the volcano Ajiuna, and is a large river at Kediri. From this place its course is no longer interrupted by any impediment, and it bears boats of a very considerable size to its mouth; and this is the reason why the Kediri Islands abound in unacquainted with the cultivation of rice and other grains on the slopes of the mountains and hills, which are formed into terraces. They know likewise the advantages of a proper kind of fertilization, and in some parts the rain during the greatest part of the year, a crop of rice, and in the dry part some species of pulse, farinaceous root, or cotton. In the richer lands it is usual to take from them without interruption a double harvest during every twelve months. The climate, the principal of the island, is a hot, dry, and temperate, with a great variety of fruits and flowers. It is variously described as containing the most beautiful species of flowers, with other kinds of vegetation, than any other part of the globe, and this character is certainly due to the greatest proportion of the low coast along the Java Sea; but on examining it has been found that by far the greatest part of the island, in point of salubrity, is equal, if not superior, to any other tropical country.

Productions; Vegetables.—Though not equal to the Hindoo in agriculture, the Javanese are far superior to their neighbors in the art of cultivation. They have been acquainted with the cultivation of rice and other grains on the slopes of the mountains and hills, which are formed into terraces. They know likewise the advantages of a proper kind of fertilization, and in some parts the rain during the greatest part of the year, a crop of rice, and in the dry part some species of pulse, farinaceous root, or cotton. In the richer lands it is usual to take from them without interruption a double harvest during every twelve months. The climate, the principal of the island, is a hot, dry, and temperate, with a great variety of fruits and flowers. It is variously described as containing the most beautiful species of flowers, with other kinds of vegetation, than any other part of the globe, and this character is certainly due to the greatest proportion of the low coast along the Java Sea; but on examining it has been found that by far the greatest part of the island, in point of salubrity, is equal, if not superior, to any other tropical country.

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**Animals**—There are no elephants, camels, or asses. The horses are of a small breed, but strong, fleet, and well made. Buffaloes are numerous, and of greater use in agriculture than any other animal. Black cattle are common, but limited in extent, and the oxen are mostly of the wild ox. Goats are abundant, but sheep are scarce; both are of small size. The hog is reared chiefly by the Chinese.

Of beasts of prey there are the tiger, the leopard, the jaguar, and the crocodile. Of water-birds the wild geese are the rich heron, the wild Java ox, and the wild stag, as Raffles calls it, which is perhaps the axis deer.

Of domestic birds there are turkeys, geese near the settlements of the Europeans, ducks, fowls, and pigeons. Among the most remarkable birds is the very beautiful estrella, whose nests are eaten, and exported in large quantities to the Chinese market. They are called Salanganes.

The cat is abundant in the rivers of Java, but, according to Raffles, the animal much more resembles the crocodile of Egypt than the alligator of America. This crocodile is mentioned by Thunberg and by Mandelso, the latter of whom says that it was eaten by the natives. Of serpents there are said to be several poisonous varieties. Turtle and fish are abundant. Honey and wax are also obtained. Silk-worms were once introduced by the Dutch, but this branch of industry did not extend among the natives.

Minerals.—Few minerals are known to exist in Java. Petroleum is obtained in small quantities, and indications of gold have been observed in several places. Salt is made of sea-water in some parts of the northern coast. Sali-peret is extracted from the earth of some caves, and sulphur is found on the island.

**Political Divisions, Towns, &c.—** The greatest part of the island is in possession of the Dutch. The districts situated on both extremities of the island, as well as the whole of the northern coast, are immediately subject to them. But the southern coast and the adjoining countries, between 10° 30' and 12° 20' E. long., with the exception of the small district of Pachitan, which has recently ceded to the European government, is subject to two native princes, the Susuhunan, or emperor, and the sultan. Their dominions extend more than 250 miles along the southern coast, and form one-fourth of the whole island.

1. The Dutch possessions are divided into 17 provinces. The country west of 108° 30' comprehends five of them, Bantam, Batavia, Buitenzorg, the Preanger districts, and Cheribon. The low land along the coast are of considerable fertility, but large tracts in the mountain-ranges still remain in a state of nature, and where the ground has been cleared of forests they are now overgrown with grass. The rank grasses of Bandung however are well cultivated and crowded. The Preanger districts are governed by native hereditary princes, who pay a tribute to the Dutch. The most considerable and remarkable towns in this country are or near the northern coast, Batavia, and the governor of Bantam resides, is a thriving place some miles inland, and distant from the ancient town of Bantam, which has been abandoned. Batavia, which once had a population of 160,000 souls, contained in 1834 not more than 53,961 inhabitants, having been partly abandoned on account of its unhealthiness. [Batavi.] But its suburbs, situated at some distance and on a higher level, have received a great part of the population. Of these suburbs Moonivenist is built in the Dutch style, with a wide canal, intersecting it, and inhabited by the native and people in transit. The fort is a thriving town, with a good roadstead and 10,000 inhabitants; it contains a beautiful mosque. In the interior of the country is Buitenzorg, a thriving and well-built village, 40 miles from the sea, on the feet of the hills. It contains the summer palace of the governor-general and many fine country-houses. A navigable canal unites it to the harbour of Batavia. The most considerable town in the Preanger districts is Cheribon.

On the south-east of 108° 30' to the Strait of Madura contain the nine provinces of Tegal and Brebes, Pakalongan, Kediri, Samangar, Japa, Rembang, Gresek, and Sukabaya. They constitute the most fertile part of the Dutch dominions, and contain the Vale of Kedu, the State of Demak, and the Plain of Surabaya. The chief towns from west to east are the following:—Samargao, with more than 30,000 inhabitants, has an extensive commerce. Foreign vessels anchor at it, and regular traffic is carried on to it. Tanah Prosper is a well-built city, celebrated for its academy. Rembang has 8000 inhabitants and some trade. Surabaya is situated on the Straits of Madura, which form an excellent and spacious harbour with good anchorages, and secure against the violence of the sea and wind. It is one of the largest and most flourishing towns in Java, the population exceeded 30,000 souls in 1815. It is open to foreign vessels. In the interior, in the Vale of Kedu, are the extensive and admired ruins of the temples of Boro Bodh, and other ancient structures.

The eastern peninsula, which extends to the Strait of Bali, is less fertile than any part of the island, being almost entirely occupied by mountains. It contains three provinces, Passaruan, Besuki, and Banyuwangi, of which the last is noted for its coffee, which is said to be inferior to that of Mocha, and for the great quantity of sulphur which abounds there. Passaruan is a small town on the sea-coast.

2. The dominions of the Susuhunan, which contain a population of nearly one million, consist of two separate tracts. The largest lies between 108° 30' and 14° 30' E. long., and contains the fertile vale of Banyumas, with the town of the same name, which has 8000 inhabitants. From this the smaller portion is separated by the Vale of Kedu and some territories of the Sultan of Banyumasa, and the interior of the island, which is included between 3° 30' and 11° 30' E. long., contains the residence of the Susuhunan, called Sura-kerta, on the Solo River, which has a population of 105,000 souls.

3. The territories of the Sultan extend between 110° and 108° 30' E. long., and contain 200,000 inhabitants.

In their eastern districts is the fertile plain of Kedari. The capital is Yuga-kerta, a town with 90,000 inhabitants. In its vicinity are the ruins of Brambanan, called Chandi Sewu, or the Thousand Temples. [BRAMBANAN.]

**Inhabitants.**—The Javanese are a race of the most peculiar appearance—nearly brown, short, with their arms and legs set rather above the shoulders, and their heads small. They have little beard. The Javanese are divided into several classes, the highest of which is the priest, who is usually distinguished by his long hair. They are in a great degree distinguished by their thin noses and small, rather flat, narrow eyes. The complexion is generally brown, and darker than in the neighboring islands. The hair is long, thin, and always black. They have very little beard. The Javanese are very religious, and have some temples in nearly every village. The language they speak is greatly distinguished, and almost entirely in Sanscrit words. The Javanese have a native literature, which however is not rich. They have also translations from the Sanscrit and Arabic; the latter are small in number and solely on subjects of religion and jurisprudence. In civilization the Javanese are much superior to all other nations who inhabit the Indian Archipelago. This is evidently shown by the state of their agriculture, though it cannot be compared with that of the Hindus or Chinese. The cultivation of sugar-cane occupies the greater part of the coast, which is particularly fit for it. The cultivation of rice and the planting of trees are not common, nor is tobacco one of the principal articles of commerce. The use of rice is almost universal, and of some importance. It is used as a universal sauce, more generally than soy with the Japanese; and as soon as Europeans have overcome their repugnance to it, they become as partial to it as the natives. There is no use of Pungarengue, except in working gold. Their cotton-cloth is coarse, but of a substantial and durable texture; a small quantity is exported. The raw silk, imported from China, is manufactured into a rich thick material, more distinguished by the beauty of the workmanship. The Javanese show also considerable skill in the construction of their vessels and boats, of which there is a great variety.
The whole population of Java in 1815 consisted of 6,520,829 natives, and about 100,000 foreigners settled on the island. The foreigners are Chinese, Malays, Hindus, Arabian merchants, and slaves brought by the Europeans and Chinese from India. Commerce—Java is extremely well adapted for an extensive commerce. The island itself is rich in productions, and its northern coasts, which are accessible to vessels all the year round, lie opposite the richest countries of Asia. Before the 18th century, the islands were inhabited by the Dyaks, the Bugis, the Minangkabaus, the Moros, and the Moluccans. All of the trade which Holland carries on with its extensive settlements in the Indian Archipelago. All the goods destined for consumption in the Moluccas, Celebes, Borneo, and Java are conveyed to the Dutch establishments, and forwarded thence to the places of consumption. The exports of these countries, intended for the European and American market, are likewise sent to Java and thence to Europe. The trade of the island was always open to the independent Asiatic nations, and since its re-occupation by the Dutch the vessels of all European nations are admitted into the ports of Batavia, Samarang, and Surabaya.

The Dutch and other Europeans and the North American export from Java chiefly coffee, sugar, rice, pepper, and tea; minor articles are long pepper, cubeb pepper, ginger, turmeric, cajuput oil, tamarinds from Madura, sago, ratan, and some hides and horns of buffaloes and oxen; also vessels built of teak and teak timber. The imports are chiefly chintzes, white cottons, handkerchiefs, and velvets; wicker-goods, woodwork, Swedish and British; some cutlery, nails, and small anchors; wrought copper, the unwrought copper being imported from Japan; some fire-arms and ammunition of the Portuguese and the French, cast-iron ware and earthenware, opium from Malaya and Turkey.

The Chinese chiefly visit the harbours of Batavia and Semarang, and their depots depart from the harbours of the provinces of Quanton, or Canton, Fokian, and Chekiang. The Chinese navigators and adventurers leave their country in the beginning of the eastern monsoon, and carry on a trading voyage as they proceed westward, until they reach the limit of their navigation, at Malacca, Penang, and Achin, and proceed to the Moluccas. The commodities which they export from their own country and the islands which they visit before they arrive at Java are, the excellent and durable cotton-cloth of their native country, red-dust, nutmegs, Spanish dollers, rhubarb, frankincense, and tortugue oil. They take in return bird's nests, European and Indian cotton goods, unwrought iron, salt, rice, different kinds of pulse, and tobacco.

The inhabitants of Comorondel and Malabar bring to Java woolen goods, raw cotton, Taffy, Dyup, and muslin from Bombay, and the cotton and silk from the Moluccas and Sumatra. They take in return betel-nut, beeswax, black pepper, nutmegs, and mace, brought from the Moluccas, ivory and damar from Borneo and Sumatra, and tin from Banda. A few vessels from Mocha in Arabia annually visit Java, and the produce of their voyage is chiefly rice, tobacco, and bullion; and take in return cloves and nutmeg, black pepper, betel-nut, rice, and sugar. It is stated, that in 1825 the imports into Java amounted to about 1,140,000L, and the exports to about 1,400,000L. The British import to the amount of 185,000L, and exported to the amount of 270,000L. The French import to the amount of 200,000L, and exported to the amount of 300,000L. The British import to the amount of 400,000L, and exported to the amount of 600,000L. The Dutch import to the amount of 500,000L, and exported to the amount of 700,000L. The British import to the amount of 2,000,000L, and exported to the amount of 3,000,000L. The French import to the amount of 1,500,000L, and exported to the amount of 2,500,000L. The British import to the amount of 5,000,000L, and exported to the amount of 7,000,000L. The French import to the amount of 10,000,000L, and exported to the amount of 15,000,000L. The British import to the amount of 20,000,000L, and exported to the amount of 30,000,000L. The French import to the amount of 40,000,000L, and exported to the amount of 60,000,000L. The British import to the amount of 60,000,000L, and exported to the amount of 90,000,000L. The North American imports to the amount of 100,000L, and exported to the amount of 200,000L. Merchandise to the amount of 400,000L, was sent to Mocca in Arabia. The exports to China were estimated at 113,600L, and the imports at a similar sum. From Java were sent to the other islands of the Indian Archipelago goods amounting to 379,000L, and from these islands were exported others amounting to 334,000L.

History—The Portuguese reached Java in 1511, and soon after began to form small settlements. The Dutch established themselves at Batavia in 1595, and in 1602 the English erected a factory at the same place, which was the first possession of the English in the East Indies. But the English as well as the Portuguese were soon obliged to give way to the Dutch. The English settle the town of Batavia, and by degrees enlarged their dominion, until they succeeded, about the middle of the last century, in dividing the empire of the Sushumian into two parts, and appropriating the greater portion of it to themselves. The two sovereigns became at the same time dependent on the Dutch government, and have since been obliged to sell to them, at fixed and low prices, considerable quantities of rice, pepper, sugar, and coffee. The Dutch also claim the right of confirming the successors of the sultans. When Holland was united to the empire of Bonaparte, the British took possession of the island in 1811, but restored it to the Dutch after the fall of Bonaparte in 1816. (Stavorenius, Voyages to the East Indies; Raffles' History of Java; C. M. de Geer, An Indian Archipelago; Count Hogendorp's Coup d'Œil sur Java; Description géographique, historique et commerciale de Java et des autres îles de l'Archipel indo; Ueber die Kaut Sprache auf der Javas Inse, Sc., von W. von Humboldt, Berlin, 1836.)

JAVELIN SNAKE. [Acontias; Blind-worm, vol. iv., p. 529.] The cut which illustrates Acontias appears to have been taken from Cuvier's reference (Regne Animal) to Seba, ii., xxxi, i, which is erroneous. In the plate of Seba quoted, No. 4 may pass for an Acontias, but No. 1 represents a totally different form.

Acontias Melanops.

JAXT (now often written Jagst), one of the four circles into which the kingdom of Württemberg is divided. It borders on the north-west on Baden, and on the north and east on Bavaria. It has an area of 2,104 square miles, and a population of 35,000. It is divided into 14 high bailiwicks. The chief town is Ellwangen. The principal rivers are the Jaxt, from which it has its name, the Kocher, and the Reus. The greater part of the possessions of the princes of the House of Hohenlohe is situated in this circle. This ancient House is descended from Eberhard, duke of Franconia, who died in 918, and was brother to King Conrad, and is named from the castle of Hohenlohe (Holch, Holch), the ruins of which are still to be seen at the village of Holbach near Uffenheim in Bavaria. The princes of Hohenlohe lost their sovereign rights on the dissolution of the German Empire and the formation of the Rhenish Confederation, and were declared vassals of the kings of Württemberg and Bavaria. The House now consists of two principal lines, Hohenlohe Neuenstein and Hohenlohe Waldenburg. The first, which is Protestant, is divided into three branches: H. Langenburg, with a territory of 9 square miles and 16,800 inhabitants; 2. H. Oettingen (for formerly Ingeloldingen), with a territory of 135 square miles and 25,000 inhabitants; 3. H. Langenburg-Kirchberg, with a territory of 84 square miles and 13,400 inhabitants. The second main line, which is of the Roman Catholic religion, is likewise divided into three branches: Hohenlohe Waldenburg and Bartenstein, with a territory of 148 square miles and 25,000 inhabitants; 4. H. Langenburg-Kirchberg, with a territory of 171 square miles and 17,500 inhabitants.
The only poem by Jayadeva which is extant is entitled ‘Gita Govinda,’ that is, ‘the poem in honour of Govinda,’ one of the names of Krishna, the eighth avatar, or incarnation, of Vishnu. The poem is a kind of pastoral drama, in which the loves of Krishna and Radha are described in a glowing and voluptuous manner. This poem has always been greatly admired among the Hindus; and the majority of Hindu commentators contend that it is not to be understood in a literal, but in a figurative and allegorical sense. In the 15th century, the Hindu and Radha describe the ‘reciprocal attraction between the divine goodness and the human soul.’ Among the Europeans, Sir William Jones and Colebrooke admit this allegorical mode of interpretation (As. Res. iii. 183); but this is the less probable, because the poem is called ‘Gita Govinda,’ like the poems of Hafiz, is in reality what it professes to be, merely an amatory poem; and that the allegorical mode of interpretation is the invention of commentators and scholars. The question has been very ably discussed by Lassen in his Prolegomena.

An English translation of the ‘Gita Govinda’ was published by Sir William Jones in the third volume of the As. Res. The original text was printed very inaccurately at Cambrai, in a new and very defective edition, with notes, and a Latin translation, compiled by Lassen, was published at Bonn, 1836.

Jean I., a posthumous son of Louis X. Hutin, was born in 1316, and lived only eight days, but is numbered in the chronological order of kings. At his death his uncle and regent Philippe le Long assumed the title of Philippe V.

Jean II., son of Philippe de Valois and of Jeanne de Burgundy, ascended the throne upon his father's death in 1340. On the morning of his رسال, high constable of France, to be beheaded without trial on a suspicion of treason, and he afterwards invited King Charles of Navarre, with whom he had some differences, to an interview at Rouen, and there arrested him and put him in irons. The brother of the King of Navarre and the relatives of the murdered lords applied to Edward III. of England for assistance. In 1355, Edward sent his son the Black Prince into France at the head of an army. After ravaging several provinces the Black Prince was met by King Jean near Poitiers, who, with 80,000 men attacked the English, 10,000 in number, on the 19th September, 1356: the French were completely defeated, and Jean, after displaying much personal bravado, was taken prisoner and conducted to London, where he was received by King Edward with great honour. Negotiations followed: Edward offered to renounce his assumed claim to the French crown on condition of being acknowledged as absolute sovereign of Normandy, Guisnez, Calais, and other lands which had been held in fief by the former kings of England. Jean wanted to gain time, but meanwhile his own country fell into a state of horrible anarchy. The citizens of Paris revolted against their king Charles, and drove him out of Paris, and soon after the peasant of Normandy, so long oppressed and brutalized by the feudal nobility, broke out into insurrection, plundered and burnt the castles of the nobles, and massacred all within them, men, women and children, with the utmost cruelty. This service was called la Jaquiere, from Jacques Bon-homme, the nickname given in derision to the French peasant, lasted during the years 1357 and 1358, until the Dauphin and other great lords, having collected their forces, fell upon the peasants and massacred them by thousands, without giving any quarter. In May, 1356, peace was concluded at Bretigny between France and England, Edward giving up his claim to Normandy and France, and assuming the title of vassal of the King of Aquitaine with the consent of the Dauphin, who promised to pay a large ransom for his father. Jean was then restored to liberty, but he found so great an opposition among his nobles to the fulfilment of the conditions of the treaty, and was perhaps also made so uncomfortable by the circumstances which prevailed in France, that he resolved, to the great astonishment of his courtiers, to return to England, to confer with Edward upon what was to be done. On arriving in London he took up his old quarters in the Tower, and was sentenced to the most severe punishment by the English court. He was afterwards released, but died in London, in April, 1364. He was succeeded in France by his son Charles V.
of pure republican institutions. In the ardour of youth, his zeal and energy mainly contributed to animate his countrymen to declare their independence on a foreign power. In his mature age, when a member of the General Administration, he struggled, and he struggled at one time almost an individual, to maintain the great principles of the Revolution, and develop the doctrines of a pure unmixed popular government. His influence gave to these doctrines a consistency, and a form, and a distinctness, which the mass of the nation could easily comprehend. Among the three leading parties in the United States, which, whether always rightly appealing to his doctrines or not for the vindication of their acts, still regarded him as the father of their school and the exception to the prevailing manners, and the freedom with which he expressed his opinions on all subjects, he gave a practical example of that republican simplicity which he cultivated, and of that free inquiry which he urged upon all. Such a man must always have many friends and many enemies. From his friends and admirers he has received, perhaps, not more praise than those who believe in the truth of his doctrines and the purity of his conduct are bound to bestow; by his enemies, both here and abroad, he has been blackened by every form of falsehood and misrepresentation.

Thomas Jefferson was born April 2, 1743, at Shadwell, now in the county of Albemarle, in Virginia. He was educated at the College of William and Mary, at Williamsburg, the youngest of five sons of a distinguished family of Scotch extract, who was professor of mathematics in the college, he studied mathematics, ethics, and other branches of knowledge. His education, owing to the care of this excellent instructor, in his own mind, must have been of a very decided kind. In addition to his studies, he made himself well acquainted with the best Greek and Latin writers, and to the end of his long life retained his ability to read them. Mr. Jefferson studied law under Mr. Wythe, then a lawyer of eminent repute. He made his first appearance at the bar of the General Court in 1767, at the age of twenty-four, about two years after the misunderstanding between Great Britain and the Colonies had commenced. He practised for seven or eight years in the General Court, and was gradually rising to the first rank as an advocate, and able lawyer, when he was called away to more important duties by the political events that preceded the American Revolution. In 1779 he was elected a member of the House of Burgesses for the county of Albemarle. In the session of this spring the House unanimously came to resolutions in opposition to those which had been lately passed in England by both houses of parliament on the affairs of Massachusetts. This measure, which was accompanied with an order for his refusal to receive an address of congratulations from Virginia was exclusively vested in its own legislature, and others of a like tendency, induced the governor, Lord Botetourt, abruptly to dissolve the Assembly. The next day the members met at the Raleigh Tavern, and entered into a compact, by which they agreed "to import or purchase certain specified kinds of British merchandise, till the act of parliament for raising a revenue in America was repealed; and they recommended this agreement to be adopted by their constituents. Eighty-eight members signed the agreement, among whom were George Washington, Thomas Jefferson, and others, who afterwards took a distinguished part in public affairs.

In 1773, on the meeting of the Virginia Assembly in the spring, he formed the history of organizing the Standing Committee of Correspondence and Inquiry, the main objects of which were to procure early intelligence of the proceedings of the British parliament, and to maintain a constant communication among all the Colonies. The dissolution of the Assembly, in May, 1774, by the governor, Lord Dunmore, eighty-nine members met at the Raleigh Tavern, and, among other things, recommended the Committee of Correspondence to communicate with the Committee of Secret Correspondence of New England, appointing deputies for the several colonies of British America, to meet in General Congress, at such place annually as should be thought most convenient, to consult on their common interests. It was also forthwith agreed that the committee should communicate the proceedings of the Assembly. At the same time, living in the colony of Virginia should meet in Convention at Williamsburg on the 1st of August following, in order to appoint delegates to the Congress, if such General Congress should be approved by the other colonies. The Convention did meet, and thus formed the first popular assembly in Virginia uncontrolled by governor or council. Mr. Jefferson, who was one of the deputies, prepared instructions for the delegates who might be sent to the Convention. During this period, the colonists drew up another set of instructions, which, though not so strong as Mr. Jefferson's, expressed with great clearness the points at issue between the colonies and the mother-country, and the manner in which the colonies had to complain. The General Congress, consisting of five members, met at Philadelphia, September 3, 1774. The disputes which had broken out between Lord Dunmore and the Assembly of Virginia were continually increased by fresh causes of mutual irritation; and the governor at last thought it prudent to remove himself and his family into a British ship of war which was lying at York in York River. His whole conduct during this period was feeble and contemptible. His last acts from his head-quarters at Norfolk were to annoy the inhabitants on the rivers and bays by a predatory kind of warfare, to proclaim martial law in the colony, and to give freedom to such of the slaves as would bear arms against their masters. At last, after setting fire to a number of vessels on the James, he quickly made his escape so soon after to leave the country. Thus ended the colonial government in Virginia.

On the 21st June, 1775, Mr. Jefferson took his seat in the General Congress, as one of the delegates from Virginia, and was adopted by a committee to draw up a declaration of the cause of taking up arms. A part of the address which he drew up was finally adopted, and no doubt greatly contributed to bring about the more decisive declaration of the following year. In 1776, he was again a delegate to Congress, and one of a committee appointed to draw up a declaration of independence. The committee was chosen in the usual way, by ballot, and Mr. Jefferson had received the greatest number of votes. He was selected as a member of a committee to make the declaration. Before it was shown to the committee, a few verbal alterations were made in it by Dr. Franklin and Mr. (afterwards President) Adams. After being curtailed about one-third, and receiving some slight alterations, it was agreed to by the House, July 4, and signed by all the members present, except one. This instrument is too well known to require any remarks. It has both merits and defects; but it served the purpose for which it was intended, and was the instrument of satisfaction. It remains for the question between the mother-country and the colonies referred to the decision of the sword, the only alternative then left except unconditional submission.

Before their adjournment the Virginia Convention, July 3, had elected Mr. Jefferson a delegate to Congress for another year; but he declined the honour on various grounds, among which was his desire to assist in reforming the laws of Virginia, under the new constitution, which had just been adopted. Congress also marked their sense of his services by appointing him joint envoy to France, with Dr. Franklin and Silas Deane; but domestic considerations induced him to decline this honour also.

From this time Mr. Jefferson's public life is interwoven with the history of the new State, and with that of the United States. During the war he took no part in military movements. He was governor of Virginia in part of 1779, 1780, and part of 1781, in which year the state suffered considerably from the incursions of Lord Cornwallis and the enemy. At the close of his period of office he narrowly escaped being taken prisoner by Colonel Tarleton in his own house at Monticello.

In May, 1784, Mr. Jefferson was appointed by Congress minister to France, where he remained five years, during which he was actively employed in promoting the general interests of his country, and in keeping up an extensive correspondence. His industry and methodical habits enabled him to do a great deal of work in the execution of everything that could in any way prove beneficial to his countrymen. His correspondence during this period shows the variety of his pursuits, his unwearied industry, and his unbounded zeal for every improvement
that could benefit the social condition of man. His remarks on the political troubles of France, of which he witnessed the beginning, are characterized by his usual closeness of observation, and the laconic directness of the language that would result from the people being called to participate in the exercise of the sovereign power. After all that has been written on the subject, they will still be read with interest.

He returned to America at the close of 1789, and early in the next year he was appointed secretary of state by the president, General Washington. He held this office till the end of 1793, when he resigned. From 1793 to 1797 he lived in retirement. In 1797 he was elected vice-president of the United States, and in 1801, 8 years after Mr. Jefferson’s election to the presidency, he was placed in the same office by the House of Representatives, on whom the election devolved in consequence of the equal division of the electors’ votes between Mr. Jefferson and Colonel Burr. He was elected a second time, and after fulfilling his term of eight years retired to his favourite residence at Monticello, near the centre of the state of Virginia.

On Mr. Jefferson’s retirement from the presidency of the United States he received, in the form of a farewell address, the thanks of the General Assembly of his native State, February 9th, 1809. After briefly recapitulating the leading measures of his administration, most of which faction itself must allow were eminently calculated to promote the happiness and interest of the United States, he public principles on which the constitution was founded, the General Assembly conclude with bearing testimony to his unvarying singleness of purpose, from the days of his youth, when he removed the governor Dunmore, to his retirement from the highest honours which the united nation could bestow. This address, which, in point of style, is more free from objection than most American productions of the same class, is such as few men on retiring from power have received, and it was offered for services which few have performed.

In this document, among the advantages for which the nation was indebted to Mr. Jefferson’s administration, the acquisition of Louisiana, with and it the free navigation of the Mississippi, are not forgotten. Mr. Jefferson early saw the importance of the United States possessing this great outlet for the commerce of the Western states, and strongly urged it while he was secretary of state under General Washington. The object was accomplished in 1803, when Louisiana was purchased from the French for 15,000,000 dollars.

Mr. Jefferson himself thought that the most important services which he rendered to his country was his opposition to the federal party during the Adams’ administration, while he was himself vice-president of the United States. Himself in the Senate and Mr. Gallatin in the House of Representatives had alone to sustain the brunt of the attack on the republic. The re-action that ensued drove Mr. Adams from his office, and placed Mr. Jefferson there. Mr. Jefferson’s administration was characterized by a zealous and unwearied activity in the promotion of all those measures which he believed to be for the general welfare. He never allowed considerations of relationship or friendship to bias him in the selection of proper persons for offices; he always found, as he says, that there were better men for every place than any of his own connections.

The last years of his life, though spent in retirement, were not wasted in inactivity. He continued his habits of early rising and constant occupation; he maintained a very extensive correspondence with all parts of the world; received at his table a great number of visitors, and was actively engaged in the foundation and direction of the University of Virginia, which was established by the state of Virginia near the village of Charlottesville, a few miles from Monticello.

Though but Mr. Jefferson could have had influence enough to induce the legislature of Virginia to grant the necessary funds for the endowment of this university. Though often baffled, he finally succeeded, by the help of his friends in that body, in obtaining ample grants for the building, and the legislature planned the buildings himself, and superintended their erection; drew up with his own hand a well digested and copious catalogue of books for a library, a large part of which were purchased in Europe and ready for use when the university opened in 1825; and he went so far as to prevail with the visitors of the institution to send an agent to Europe to select four of the professors. This last circumstance would have been more to the taste of Mr. Jefferson if he did not cherish such an unreason-able hostility to Great Britain as his enemies have charged him with.

The last letter in Mr. Jefferson’s published correspondence, and it is probably the last that he wrote, is in reply toMr. Madison’s address of 1813, Washington, who had invited Mr. Jefferson to the celebration of the fiftieth anniversary of American independence. His health would not permit him to accept the invitation. His reply is characteristic. The zeal for republican institutions that marked his life was not cooled by age. He still felt the warmth and freshness of the letter of a man of the age of fourteen and three, suffering under a painful malady. His firm conviction in the truth of those principles which he and Burr had maintained through life appears stronger when he approaches the termination of his career. He died July 4th, 1826, the day of the celebration, just half a century after that on which the Declaration of Independence was signed.

Mr. Adams died on the same day. Mr. Jefferson is buried in the grounds near his own house. A simple inscription, which was found among his papers after his death, recording him as the author of the Declaration of American Independence, of the Statutes of Virginia for Religious Freedom, and of the law of the University of Virginia, is placed on his tomb.

The fact of so long being president of the United States is not mentioned.

The latter days of Mr. Jefferson were embittered by pecuniary difficulties, which were owing in some measure to the large sum of money which he had lent to the government for the cultivation of the public service; and in a great degree to an obligation which he incurred to pay a friend’s debts (see an excellent letter to Mr. Madison, February 17th, 1825). In the 4th vol. of his Memoirs, &c., p. 430, are printed Mr. Jefferson’s Thoughts on Lotteries, which he wrote at the time when he was making his application to the legislature of Virginia for permission to sell his property by lottery, in order to pay his debts and make some provision for his eight children. By the operation of the lottery, his properties are characterized by Mr. Jefferson’s usual felicity of expression and ingenuity, and they are also in like manner pervaded by the fallacies which are involved in many of his political and moral speculations. But this paper has merits which entitle it to particular attention. It contains a brief recita-tion of his services; and is in fact the epitome of the life of a man who for sixty years was actively and usefully employed for his country. ‘I came,’ he says, ‘of age in 1764, and was soon put into the nomination of justices of the peace in my home county of Albemarle. I was elected a representative in the Virginia house of Burgesses, and became one of its representatives in the legislature; I was thence sent to the old Congress; then employed two years with Mr. Pendleton and Wythe on the revival and reduction of the laws; then, being a member of the commission for the organization of the county of Albemarle, I found the common law; then elected governor; next to the legisla-ture, and to Congress again; sent to Europe as minister plenipotentiary; appointed secretary of state to the new government; elected vice-president and president; and, lastly, a visitor and rector of the university of Virginia. In these different offices, with scarcely any interval between them, I have been in the public service now sixty-one years, as delegate from the greater part of that time in foreign countries or in other states.’

This is the outline of Mr. Jefferson’s public life; to fill it up would be to write the history of the United States, from the troubles which preceded the Declaration of Independence to Mr. Jefferson’s retirement from the presidency in 1809.

The paper from which we have already made one extract presents us with his services in another point of view, still more interesting. It is an epitome of those great measures which he has achieved for the improvement of the country, by his untiring labours in the interests of the unwarred industry, and singleness of mind, in his pursuit of objects which he believed essential to the stability and happiness of his country.

If legislative services are worth mentioning, and the Assemblies he has chosen to meddle in are as good as any, there is no reason why we should not be impressed on our laws in the first crisis of our birth as a nation, was of any value, they will find that the leading and most important laws of that day were prepared by myself, and carried chiefly by my efforts; supported, indeed
byable and faithful coadjutors from the ranks of the House, very effective as seconds, but who would not have taken the field as leaders.

The prohibition of the further importation of slaves was the first of its kind, only to illustrate its force. The law of 1790, granting equal inheritance to sons and daughters, was a step in the right direction. The attack on the establishment of a dominant religion was first made by myself. It could be carried at first only by a suspension of salaries for one year, by battling it again the next session for another year, and so from year to year, until the public mind was ripened for the bill for establishing religious freedom, which I had prepared for the revised code also. This was at length established permanently, and by the efforts of Mr. Madison, being myself at Europe at the time that work was brought forward.

To these particular services I think I might add the establishment of our university, as principally my work, acknowledging at the same time, as I do, the great assistance derived from my friends. The residence of the enterprise, as well as the buildings as of the general organization and care of the whole. The effect of this institution on the future fame, fortune, and prosperity of the State, would almost be a hard matter to follow.

The institution is now qualified to raise its youth to an order of science unequalled in any other state; and this superiority will be the greater from the free range of mind encouraged there, and the restraint imposed at other seminaries by the shackles of denominating hierarchy and a bigoted adherence to ancient habits.

When Mr. Jefferson was a member of the colonial legislature, he made an effort for the emancipation of slaves; but all proposals of that kind, as well as for stopping the importation of Negroes, was discouraged during the colonial government. The importation of slaves into Virginia, whether by sea or land, was stopped in 1778, in the third year of the Commonwealth, by a bill brought in by Mr. Jefferson, which passed without opposition, and, as Mr. Jefferson observes, "stopped the increase of the evil by importation, leaving to future efforts its final eradication."

The Act for the Abolition of Entails was not carried without some opposition, and that for the abolition of the Estates of the Realm, was zealously encountered in 1786, though before the Revolution the majority, or at least a large number, of the people had become dissenters from the church. The reason of the difficulty lay in the majority of the people being churchmen.

Mr. Jefferson married in 1772, Martha Skelton, the widow of Bathurst Skelton. She died ten years after their marriage. One daughter, and a numerous family of grandchildren and great grandchildren, survived him.

He was the author of "Notes on Virginia," which have been several times printed; but his reputation as a writer rests on his official papers and correspondence, of which latter, we believe, that which is published forms only a part of what he left behind him. His letters, as his biographers say, "especially those of his latter years, are written with great elegance and felicity. They have all the ease of Addison, with far greater precision. His style is always natural, flowing, and perspicuous; rarely imaginative and never declamatory. It was occasionally marked by terms that were not apt words already in use. It was neither diffuse nor concise, but more inclined to the former." "As an author, he has left no memorial that is worthy of his genius; for the public papers of his contemporaries, though eminent in their time, are not so wholly devoted to philosophical topics, as those which dictated them than for the intellectual power which they exhibit. They presented no occasion for novelty of thought or argument or diction. His purpose was only to make judicious and felicitous use of that which everybody knew and would assent to; and this object he has emi-
JEN.

and ended in the complete subjugation and humiliation of the kingdom. Jena and its environs were considerably injured, and the Eichenplatz was the site of 28 houses which were burnt on that occasion.

JENESI. [Siberia.]

JENISEISK. [Siberia.]

JENNER, EDWARD, M.D., was born in 1749, at Berkeley, in Gloucestershire, of which his father was vicar. He was educated at Cirencester, and apprenticed to Mr. Ludlow, a surgeon at Sudbury. At the conclusion of his apprenticeship he went to London, and became a pupil of John Hunter, whom he resided two years with, studying medicine at St. George's Hospital, and with whom his philosophical habits of mind and his love of natural history procured him an intimate and lasting friendship. In 1773 he removed to his native village, and practiced as a surgeon and apothecary till 1792, when he determined to confine himself to medicine, and obtained the degree of M.D. at St. Andrew's University.

But the history of Jenner's professional life is embodied in that of vaccination. While at Sudbury he was surprised one day at hearing a countrywoman say that she could not take the smallpox because she had had cowpox; and upon inquiry he learned that it was a popular notion in that district, that milkers who had been infected with a particular kind of smallpox had been cowing for a considerable time, and that the cow were completely secure against the smallpox. The medical men of the district told him that the security which it gave was not perfect; they had long known the opinion, and it had been communicated to Sir George Baker, but he neglected it as a possible error. Jenner during his pupilage repeatedly mentioned the facts, which had from the first made a deep impression on him, to John Hunter, but even he disregarded them; and all to whom the subject was broached either slighted or ridiculed it. Jenner however still pursued it; he found, when in practice at Berkeley, that there were some persons to whom it was impossible to give smallpox by inoculation, and that all these had had cowpox; but that there were others who had had cowpox, and who yet received smallpox. This, after much labour, led him to the discovery that the cow was subject to a variety of eruptions, of which one only had the power of guarding from smallpox, and that this (which he called the true cowpox) could be effectually communicated to the milkers at only one period of its course.

It was about 1780 that the idea first struck him that it might be possible to propagate the cowpox, and with it the security from smallpox, first from the cow to the human body, and thence from one person to another. In 1788 he carried a drawing of the casual disease, as seen on the hands of milkers, to London, and showed it to Hunter. Of course it still bore no resemblance to vaccine, but it encouraged him; scepticism or ridicule met him everywhere, and it was not till 1796 that he made the decisive experiment. On the 14th of May (a day still commemorated by an annual festival at Berwick) a boy aged eight years was vaccinated; the scar taken from a part of the animal remained on a patch of skin, and was passed through the disorder in a satisfactory manner, and was inoculated for smallpox on the 1st of July following without the least effect. Jenner then entered on an extensive series of experiments of the same kind, and in 1798 published his first memoir, 'An Enquiry into the Causes and Effects of the Variolae Vaccinae.' It excited the greatest interest, for the evidence in it seemed conclusive; yet the practice met with opposition as severe as it was lasting. It was not till seven years after that Jenner's efforts were considered as having been attended with success. He had passed, when upwards of seventy of the principal physicians and surgeons in London signed a declaration of their entire confidence in it. An attempt was then made to; disprove Jenner by experiments of his own, but it signally failed, and scientific honours were bestowed upon him from all quarters. Nothing however could induce him to leave his native village, and all his correspondence shows that the purest benevolence, rather than ambition, had been the source of his exertions. We find, in a letter to a friend, 'who, even in the morning of my life, sought the lowly and sequestered paths of life, the valley and not the mountain—shall I, now my evening is fast approaching, spend myself up as an object for fortune and ambition. No, myimd, the prospect of my profession, is amply sufficient to gratify my wishes.' Till the last day of his life, which terminated suddenly in 1823, he was occupied in the most anxious labours to diffuse the knowledge of this discovery, which had already spread far and abroad, and he had the satisfaction of knowing that vaccination had even shed its blessings over every civilized nation of the world, prolonging life, and preventing the ravages of the most terrible scourge to which the human race was subject.

JER.

The chief of them was a paper 'On the Natural History of the Cuckoo,' in which he first described that bird's habit of laying its eggs singly in the nests of smaller species, to their injury and destruction, and, having reared a young one, which, when a few days old, acquires the sole possession of the nest by the expulsion of its rightful occupants. Indeed he gained so much credit by this paper. As a philosophical writer he was a great contributor to the 'Philosophical Transactions' of the Royal Society, and that publication he left in a flourishing state. He had no patron to assist him in any of his efforts, no patronage to yield him at any time, and the same independence of opinion to the same Society, lest it should injure the scientific reputation which he had already obtained.

The life of Jenner has been written by his friend Dr. Baron of Gloucester, in 2 vols. 8vo. Five medals have been struck in his honour, of which three were produced in Germany, and a statue is erected to him in his native county. But it is remarkable that the only public testimonial which he accorded to him whose unaided efforts and industry had added more years to the life of the nation than all the emoluments of the Society from 1700 to 1800, to the number of 10,000l. and 20,000l., which were voted to him by the House of Commons in 1802 and 1807.

JENY. [Hindustan, p. 216.]

JERUSALEM. 1. AM S, being in London, died 1787, enjoyed a considerable reputation in his lifetime from the happy accident of uniting good birth and fortune with a creditable share of literary accomplishment and success. His family property was at Bottisham, near Cambridge; he was educated at St. John's College; elected M.A. in 1741; for the borough of Dunwich in 1754; for the town of Cambridge in 1761, which last he represented until his withdrawal from public life. In 1755 he was made a bencher of the Inner Temple, and he held that office in spite of political changes, until its abolition in 1780, being a steady supporter of all existing administrations. As a versifier he is elegant and sprightly; sometimes rather free: his poems, which consist of 'The Art of Dancing,' 1728, and 'Miscellanies,' 1770, have found admission into the 2nd and 3rd editions of Johnson's 'Poets.' His prose works are:—1. 'A Free Inquiry into the Nature and Origin of Evil,' 1756. This unsatisfactory attempt to solve one of the most difficult of moral problems was very able and severely criticised by Dr. Johnson in the 'Literary Magazine,' and this rebuke Jenyns seems never to have forgiven. (See Boswell's 'Life, under the above.) 2. 'View of the Internal Evidence of the Christian Religion,' 1776, for the divine origin of which he argues from ancient documents. This is the work that established his name in public estimation. This was a curious ground for a friend to take; and though the book obtained much praise, there were many also who regarded it as the work of a disguised enemy. This does not seem to have been the case; Jenyns, though once a sceptic, was in the latter part of his life a professed, and, as Boswell, who was no friend to him, believed, a sincere Christian. 3. 'Discussions on various subjects, 1763. These are political and religious. His prose writings have obtained much praise for elegance of style, art, shrewdness of remark, and aptness of illustration; but his talent was better suited for the lighter and more showy parts of literature than for metaphysics and controversial theology. He published some pieces not here mentioned. His Works are collected in 4 vols. 12mo. (London, 1789.)

JER-FA-LCON, or GYR-FA-LCON, the English name of the Falco tundracus of Latham, Genus of the French, Hérychogryphus of the British. [FALCONIDE, vol. x. p. 189.]
period through which he flourished. He was called to the prophetic office, being then in his youth, in the thirteenth year of King Josiah, which, according to the received chronology, was 629 years before the Christian era commences. He was called to the prophetic office till the eleventh year of King Zedekiah, that is, till 586 B.C. Nearly all the prophecies collected in this book were delivered by him in those reigns, and in the intermediate reigns of Jehohaz, Jehoiakim, and Jehoiachin, the unhappy family of Josiah. He flourished in the thirteenth year of the death of Zedekiah in battle by the king of Egypt, the deposition of Jehoiakim, and the two great invasions of the kingdom of Judah by Nebuchadnezzar, king of Babylon, who in the first carried away Jehoiachin and many of the people captive to Babylonia, and in the second imprisoned Zedekiah, the king, whose eyes he caused to be put out when he had slain his sons and many of his nobles in his presence. Then it was that ensued the burning of the king's palace and of the temple which had been erected by Solomon, and the whole city of Jerusalem, in that fatal fifth month and seventh day of the month which was long remembered in the calendar of Jewish calamities.

These things saw Jeremiah; and in the midst of all this, in the midst of his work, his voice was often raised, as one of the prophets of the Lord, to declare the calamities which fell upon his country, or with the voice of warning to call his countrymen to depart from the offences which had provoked those sufferings, and to turn themselves to God, and to observe His observances and in inward purity and conformity of heart.

His contemporaries in the prophetic office were in the earlier periods Zephaniah and Habakkuk, and in the latter years, Jeremiah approaches near to that of Ezekiel and Daniel. So his words are various, or, as they are various, prophecies or exhortations as he delivered at various times, mingled with relations of historical events. The last chapter, the fifty-second, is wholly historical, and is supposed to have been written by some other person, not improbably by the historian, Seraiah, who is said to have written the book of Lamentations which follows it. But the most remarkable circumstance relating to the composition of the book is this, that the various prophecies are put together in such an order as to accord the order of time in which they were delivered. As he began the account of his call to the prophetic office, but as we proceed we soon find that we have prophecies delivered in the reign of Josiah following others which were delivered many years before in the reign of Zedekiah.

However, this does not lead to any serious inconvenience or occasion any important difficulty, as we are generally informed in whose reign and at what time the several distinct prophecies were delivered. They are very easily distributed both in the short-lived growing and the long-lived growth, and so, and thus to obtain a more distinct idea of the object of the prophet, and the relation of these compositions to the time at which they lived; and on this account we omit the chronological arrangement of the several prophecies, either following Dr. Blayney, or the German critic Rosenmuller, or proposing any other of our own. Those who desire to read the Scriptures with understanding can have no more agreeable and profitable exercise than thus to refer the writings of the prophet to the period of Jewish history by which they belong, and to observe how suitable they are to the then state of the people of God, and to the character which the prophets sustained among them.

The tone in which Jeremiah addressed the people was very different to that of the well disposed. He appears to have been, an ever-faithful witness to the Most High, and to have sought to support his honour as well in the good days of King Josiah as in the evil days of his degenerate sons. In the later reigns it was said that his work, when rendered upon a large scale, is more less energetically in the resistance which they offered to the armies of Chaldaea. This led to his being placed under restraint and punished.

Within our remaine have been confin'd to the first forty-two chapters, and to the fifty-sixth, the last. But when we arrive at the forty-third chapter we find a new and very important circumstance in the life of Jeremiah. In neither the first nor the second captivity was Jeremiah at all to understand the Scripture, which he had still remained in Judæa, lamenting her fallen and desolate state, and exhorting and encouraging the remnant of the people to continue in the land till they should be forcibly expelled. This was distasteful to a powerful party, who thought they saw in Egypt a safe place of retreat from the power of the king of Babylon, and who finally led the people that remained into that country, carrying Jeremiah with them. They offered him up, as a hostage, to prevent his escape, but the Daphne of the Grecian geographers. The forty-fourth chapter is an exhortation which he delivered to his countrymen in Egypt. But in the fifty-fifth chapter we are carried back to the times of King Jehoiakim; so little of his subduer and regularity is there in the making up of this book. After this there follow various predictive discourses delivered by Jeremiah at various and uncertain periods concerning other nations, the Egyptians, Philistines, Moabites, and others, ending with an awful denunciation against Babylon, in which description of that great and flourishing city is predicted, and the return of the people from their long captivity. The prophecy of the utter abolition of Babylon, so that its site should become a place for the abode of wild beasts of the desert, is very remarkable.

The sacred books contain no later information concerning the prophet than that he was among those who went to Taphanah. But some of the early Christian writers relate of him that he went to other countries in Egypt for preaching against their idolatry.

Two very different accounts are given of the occasion of which he wrote the book of Lamentations. The old opinion, after Josephus, that it was written on the death of King Josiah; but the later and more probable opinion is that it is a bawling of the lost state of Judæa when it had suffered so dreadfully from the armies of Nebuchadnezzar. It is a very tender and pathetic poem, consisting of five stanzas, which are intended to be sung. The structure is very artificial, the successive stanzas in each of the elegies beginning with the letters of the alphabet taken in order. Some of the Psalms are also in this structure of form.

Some persons have imagined that they see in the style of Jeremiah proofs of original rusticity. There are not the dignity and splendour of Isaiah, but there are great beauties peculiar to this prophet, whose province appears rather to be the expression of grief and concern than of glowing indignation.

JERICO. [SYRIA.] JERICO, ROSE OP, is the popular name of a plant called by botanists Ananatis Hierochuntica. It is a native of Palestine and other parts of the East, and, when alive, it is a small inconsiderable annual, with branches regularly spreading round the centre. When it dies, these branches curl up so as to form a sort of ball, and, the root decaying, are blown about in the dry weather which succeeds their death. If at that time the plant is left in its natural state, it is in a wet situation, their hygroscopic properties cause them to unfold, and to assume something the appearance of a rose, a simple phenomenon to which the people of the East have attached the idea that the plant was used at the moment when our Saviour was born, and that now, if put into water when labour commences, it will indicate by its expansion the progress of parturition, and will finally expand when the child is born. The Jews call it Kaf Maryam, St. Mary's Flower.

JEROME, SAINT, one of the Fathers of the Church, and accounted the most learned of all the Latin Fathers He was well acquainted with both the Greek and Hebrew languages.

His birth was from A.D. 340, about which time he was born, to A.D. 420, in which year he died. He was a native of Pannonia, but came early to Rome, where he studied under the grammarian Donatus. When he had received baptism in token of his professing the course of travel. He visited Gaul, where he remained some time, and afterwards travelled in Thrace, Pontus, Bithynia, Galatia, and Cappadocia. When he was about thirty he began to be noted for his theological knowledge. In a remonstrance which he had written against the place called by the name of Taphanah, where he was disturbed on a suspicion of the want of perfect soundness in the faith. This determined him to go to Jerusalem, and there apply himself to the study of the Hebrew language as the best means of correction and rectification of the Old, but also of the New Testament. In A.D. 382 he returned to Rome, having spent some time at Constantinople on his Vol. XIII.—P
way, where at that time lived St. Gregory of Nazianzus, a celebrated preacher. At Rome he became secretary to Pope Damasus. There appear to be circumstances in the life of Jerome at this period which are not cleared up. It is however certain that Sericius, the successor of Damasus, has many says are for bay for Damasus had, and that Jerome left Rome and returned to the neighbourhood of Jerusalem. There he took up his abode in a monastery at Bethlehem.

In this retirement he employed himself in writing on the questions of the day which divided the opinions of Christians, and here it is believed he died, at the age of eighty years.

Many of the writings of Jerome are come down to us. Several of them are merely controversial; but there are others of a more sterling and lasting value. These are, his treatise on the following subjects of the elder Fathers; his Commentaries on the Prophetic Books of the Old Testament, on the Gospel of St. Matthew, and of several of St. Paul's Epistles. But what may be regarded as his greatest work is a translation of the books of both the Old and New Testament into Latin, which translation has been always highly valued in the Latin Church, and which is that known in the Church by the name of the Vulgate. It is a question amongst the learned how far, and whether at all, he embayed thes of the classical. In his translation. If he did not make the first effort at bringing the Scriptures within the reach of the great multitude who knew no other language but the Latin, it was a great and noble work, which ought to place his author high amongst the benefactors of mankind.

Further, the writings of Jerome are of such a kind that he is the only father that can be called a critic on the sacred writings, or who followed a just or reasonable method of criticizing. A treatise of his was one of the first books printed in England. The best edition of his works is in Latin of Vallauris, in 10 vols. 8vo. at Verona, 1734—40.

**JEROME OF PRAGUE.** [Huss.]

**JERSEY,** an island in the English Channel, about 18 miles south-east of Guernsey, measuring in a straight line between the nearest points of the two islands, between 9° and 49° 16' N. lat., and 2° 58' and 2° 14' W. long. Its form approaches to a quadrangle, having its sides facing the four cardinal points. Its greatest length from east to west is about 12 miles; its greatest breadth from north to south about 7 miles. Of its area we have no account; the population in 1831 was 35,582.

The surface of the island has a gradual slope from north to south. On the north side the coast is abrupt, rising to the height commonly of 100, sometimes of 200 feet, and broken by many indentations and bays. One of these, called Bouley or Boulay bay, has been several times surveyed, in common with the formation of a naval station, for which its easy access and good anchorage seemed to offer considerable advantages. A fine fortifications have been erected here by the States of Jersey. On the south west side of the island are two bays, St. Catherine on the north-west, where the coast is abrupt; and Grouville on the south-west, with a low shelving beach. On the west side is the wide shallow bay of St. Ouen; on the south, a smaller bay, secured by a ridge of rocks. St. Aubin's bay, on which stand the towns of St. Helier and St. Aubin, is the most frequented; but most of the bays afford anchorage.

Groups of rocks surround the island, and at various distances from it to many banks and shoals. The surface of the island is everywhere undulating. The valleys generally run from north to south; they are narrow at the north end, where the high ground forms an almost unbroken hill, and grow wider as they approach the southern part; and they expand into good pasture land. A few valleys open to the eastern and western sides of the island. The principal water-courses flow from north to south; they are more considerable than from the sides of the island would be supposed, and serve to give motion to several mills. The valley watered by this stream are 'as rife in beauty as wood, pastureage, orchard, a tinkling stream, and glimpses of the sea can make them.' (Inglis's Channel Islands.)

The high land in the northern part of the island consists for the most part of granitic rocks; the southern part of a mass of schistose rocks incumbent upon them. The high land is what the street in all round Jersey seem to be of granite formation. The rocks along the northern coast consist for the most part of sienite; they present perpendicular faces to the sea, and are everywhere intersected by perpendicular veins running north and south, which have sometimes been remedied by the shelving portion of the rock, exposed to the action of the sea. The sienite is quarried on the northern coast; part of the stone is used on the island, part is exported to Guernsey and England, and, in time of peace, to France. No metallic traces, except of iron, have been discovered in the Island. The name Jersey has probably been ascribed to the island by the Saxons, as in the island of Jersey, hence the name of the island.

The climate of Jersey, from its insular situation, is milder than that of other places under the same latitude, and the inhabitants are as healthy as the English. Snow and continued frost are rare, but there is much rain, and the dews are very heavy. High winds are prevalent and violent; gales frequently blow, especially from the west; a perfectly calm day even in summer is rare. Typhus and small-pox are not prevalent, but liver complaints, indigestion, dropsy, hypochondriasis, and remittent, typhoid, and intermittent fevers. Rheumatism, the most prevalent disease, is ascribed to the humidity of the atmosphere.

The state of agriculture in Jersey is backward, which partly owing to the minute subdivision of property, arising from the custom of gavelkind. Rents are about 4l. 10s. per English acre for the average of good land, and above 5l. 10s. for the best. The expenses of cultivation are very light, and the productiveness of the soil great. Wheat is the principal grain crop; barley is grown, and some oats; potatoes are extensively grown and used for fattening hogs and bullocks. Potatoes for exportation are widely and increasingly cultivated. Lucifer is one of the most valuable crops. A considerable portion of the land is laid out in orchards: the apples are converted into cider, which constitutes the most important produce of the island; then follow potatoes, lucerne, and wheat. The principal manures are lime, peat, and sea-marine. For fuel; fresh sea marl is preferred for grass land, marl ashes for other crops. Fallows are seldom seen. The wheat harvest commences about the beginning of August. The common English fruits are raised in Jersey, and the melon and the grape are considered as the fruits of the island.

The cow is an object of great attention in Jersey. The breed is one variety of that known in England as the Alstermin, but is considered to be deteriorating. Jersey butter is of a high quality, as the climate and the situation are both favourable to the growth of a fattening plant, in the shape of grass. Honey is exported. A few sheep are kept only by the poorer classes who have right of common. Little attention is paid to horses; the breed was crossed with the Cossack horses during the stay of some Russian troops in the island in the year 1800. Of game there are the hare and the rabbit, and the red-legged partridge. Toads are numerous, as well as snakes and lizards. The fish caught in the island are similar to those of Guernsey. [GUERNSEY.]

Jersey is divided into twelve parishes. The parishes are subdivided into parishes, called "vintaines" and the boundaries of these are called from having originally contained twenty houses. Of these vintaines there are from two to six in each pariah, and in all fifty-two. There are three towns in the island, St. Helier and St. Aubin [AUBIN, St.], both on the Bay of St. Aubin, and Gorey, on the east coast. St. Helier is toward the south-east point of the bay, and fronts the sea. In external appearance it is much on a level with English parishes, and contains several garrisons of the troops of Fort Regent, overtopping the buildings, give the place the appearance of a continental town. The houses in the more central parts of the town are chiefly inhabited by the shopkeepers; those in the outskirts, extending to the hills and the slopes of the adjoining hills, are tenanted by the more opulent merchants, and by the nu-
Gorey is in Grouville parish, and in Grouville Bay. It is built partly close to the sea and partly on the height which rises toward Mont Orgueil Castle. The importance of Gorey depends on its harbor, in which upwards of two hundred and fifty boats, half of them belonging to the island, and as many as fifteen hundred sailors, are employed, besides a thousand persons, chiefly women and boys, who are engaged in matters connected with the fishery. The larger oysters of the island are shipped to the English as soon as they are transported to the English oyster-beds. The produce of this fishery is supposed to bring to the island 20,000l. or 30,000l. per annum. In the neighborhood of Gorey is Mont Orgueil, on which is erected the fortification, commanding the headland between St. Catherine's and Grouville Bays. Its commanding situation on a rocky headland jutting into the sea, and commanding a fine land and sea view, and its massive walls, in many parts yet entire and mantled with ivy from the top of the rock to the base, render it as an object. It was the place of confinement of Pynne, and the residence of Charles II. during part of his exile.

The other places in the island are mere hamlets, grouped round the churches of the several parishes or scattered along the coast. The first of these buildings is the old church, and the ancient manor-houses, and there are several modern villas, especially near the towns. Every house and cottage, not in a street, has its garden. Myrtles, hydrangias, and various other plants which in England commonly require shelter, grow among the banks and cottages of the island.

The churches are of various dates, but all of considerable antiquity; their situation is in general well chosen, but they present no particular architectural beauties.

Major Pierson, who is the society and the constitution of the local government in Guernsey (Guernsey) will apply to Jersey. The spirit of independence is very generally diffused; industry, the love of gain, and a frugality degenerating into penuriousness, are characteristics of the island. Among the farmers and country people is "soupe à la choucroute," or "soupe à la graisse," made by boiling together cabbage, endive, and potatoes; sometimes, but rarely, a little meat is added, and parsnips or turnips are substituted for potatoes. Cider is the common drink. This meager diet has probably contributed to a deterioration of the inhabitants both in stature and appearance.

The states of Jersey consist of the governor and the bailiff of the royal court, both appointed by the crown; the twelve jurats, who have the old title of the council (or for the island in civil and criminal cases), elected to office for a term of years, who oversaw the administration of the financial and judicial affairs of the country; the archdeacon, who is the by-bailiff, who is elected by the officers of the crown; and the by-bailiffs, who are elected by the inhabitants of the island. The archdeacon, the officers of the crown, and the bailiffs, are not elected, and cannot speak, but vote. Local politics engross the greatest attention, party spirit rages furious, and whatever advantage may be had of the situation of the island, and the political experience of the inhabitants, is appropriated by parties for their own selfish purposes. There is great agitation among the inhabitants of the island, and a violent contest is going on, in which there is an appeal to the see of Winchester. The livings are all small (the great tithes going to the crown), and there are no pluralities.

There are two ancient chartered schools, with inadequate endowments; one of them, that of St. Anastasie, has no scholars, and the other, that of St. Manan; is in a languishing state. There are however National Schools at St. Helier, some parish schools with slender endowments, and several private seminaries and Sunday schools. Elementary instruction is very generally diffused, and there is scarcely a child in the island who is not at school. There is an island hospital, for the poor, and there are establishments for medical or educational departments, and every way inferior to that of Guernsey. [Guernsey.] There are several newspapers, some in French and others in English; they are for the most part devoted to party interests, and very much seasoned with personalities.

The trade of Jersey, owing to the privileges possessed by the islanders, is very considerable. The agricultural produce of the island, potatoes, apples, cider, butter, cows, and other live stock, are sent to England; the article required for the consumption of the island being in a considerable degree supplied from France. Foreign wheat is made into biscuit, and foreign leather into boots and shoes, and exported to the British colonies as "Jersey manufacture;" and vessels, which are for the most part foreign, are built with foreign materials. The shipping belonging to the island has an aggregate tonnage of 31,000, besides 300 large boats.

The general history of the Channel Islands has been noticed elsewhere. [Guernsey.] Jersey, the Cassarea of the Romans, is said by some to be the home of the Phaon of the regal of Edward III. This island was attacked by Du Guesclin, constable of France, but the arrival of succours from England prevented him from succeeding. In the war engaged by the North海上, the Danish fleet, under Sir John de Breze, avowedly for the Lancastrian party, but really for the French king. After holding part of the island for a time, he was forced to surrender. Henry VII., while earl of Richmond and an exile, and Charles II., while an exile, gave to the islanders many charters both before and after their restoration. Jersey, which was held for Charles by the valour and conduct of Sir George Carteret until taken by the Parlia mentarians under Admiral Blake and General Haines.

During the first American war, Jersey was three times attacked. The first attack was by the fleet of the States-General (the work of 779) was by an armed force with a land force of 5000 or 6000 men, under the prince of Nassau; but the attempts to land were repulsed. In the second attack the French fleet was attacked and destroyed by Sir James Wallace. The third attack was in December, 1780, when the British fleet in 1800 men took possession of St. Helier, and made the lieutenant-governor, Major Corbet, prisoner, and induced him to sign a capitulation. The British troops and island militia, under the command of General Rowallan, refused the capitulation; and attacking the French, killed Rullecourt, with the greater part of his men, and obliged the rest to surrender. Major Pierson fell in the beginning of the attack.

JERSEY, NEW, one of the republics of the United States of America, extends from 38° 55' to 41° 21' N., and from 74° to 75° 45' W. long. Its length from south to north is 170 miles, and its mean breadth 46 miles. Its surface is estimated at 7870 square miles, which exceeds that of Wales by 400 square miles. Delaware Bay and bay divide it on the west from the states of Pennsylvania and Delaware, and the Hudson river on the east for a short distance from New York. An imaginary line, 45 miles long, forms its northern boundary toward New York. On the east and south it is washed by the Atlantic and Delaware Bay.

About one half of its surface, including all the country south of a line drawn from Bordentown on the Delaware to the eastern coast of New Jersey, is covered with a sea-sand alluvium, and parts of it are completely barren. The western shores of the Delaware bay, and the Schuylkill, which produces a coarse hay. Along its eastern shores there is a series of long, narrow, and low islands, similar to those along the coast of the two Carolinas; but the inlets by which those islands are divided are deeper and more spacious, and vessels of moderate draught can enter the ports of Great Egg Harbor, Little Egg Harbour.
Barnegat, Tomabay, and Shark Inlet. North of the line drawn from Bordentown to Shrewsbury the country is hilly, but the hills are of moderate elevation, and the wide valleys between them have a good loamy soil. At the eastern extremity of this range, and immediately on the sea-shore, are the Neversink hills, which, though only 281 feet above the sea-level, are the highest eminences on the Atlantic shores from Florida Cape (35° 50' N. lat.) to this point (41° 30' N. lat.). The hilly tract covers somewhat more than one-ninth of the area of New Jersey. The most northerly portion is divided between a marshy and a mountainous tract: the former lies along the banks of the river Hudson, and extends about 10 miles from them on an average of one mile above the river. The mountainous tract occupies the remainder, and contains two ridges, which traverse the north-western corner of the state in a direction south-west and north-east. The southern chain is called the Blue Ridge, and the northern the Kittatinny Mountains; in the latter is Shooley's Mountain, 1100 feet above the sea. These ridges are mostly covered with forest trees, and the country between them has a good soil.

The large rivers of this state are those which constitute its boundary, the Hudson (New York) and the Delaware (Delaware). A canal has been cut between these two large rivers, called the Morris canal, which traverses the northern districts of the state. It leaves the Delaware at Philiburgh, opposite Easton, and runs in the valley between the Blue Ridge and the Kittatinny Mountains, north-east; it is then carried through a depression of the first-mentioned ridge, and along the Passaic river eastward and southward to Newark; it then crosses that river and passes through the marshes to Jersey city, opposite New York, where it is joined by the Newtown Creek. Its length is 86 miles, and it traverses the state in about 30 miles. Among the minor rivers the Raritan is the largest. It traverses the hilly district and falls into Amboy Bay, which is a good harbour for vessels of middling size. The Raritan is navigable from its mouth. Newark Bay also receives the Hackensack and the Passaic, of which the former is navigable for 16, and the latter for about 10 miles from its mouth. The Maurice river, which empties itself into Delaware Bay not far from Cape May, the southern extremity of the Blue Ridge and the Kittatinny Mountains, is said to be navigable for vessels of 100 tons to a distance of 20 miles from its embouchure.

The difference in climate between the southern and northern districts is very great, and depends mainly on the difference of elevation. The level sandy plains of the southern districts approximate to the temperature of Eastern Virginia, and admit the cultivation of cotton, while the mountainous northern districts experience early snows, and resemble Vermont and New Hampshire. The vegetable productions are seldom injured by drought or excess of rain.

Wheat, rye, Indian corn, oats, barley, buck-wheat, flax, and potatoes are the common crops; buck-wheat is in very great demand in the state. The cotton produced in the southern district is consumed for the domestic manufactures. Apples, pears, peaches, plums, and cherries are the common fruits, and they succeed exceedingly well. The Jersey cider is noted for its superior quality. In the mountainous parts and salt-marshes near the sea-coast great numbers of cattle are raised. Sheep are also kept in great numbers. The sea abounds in fish, and the inhabitants of the coast derive a great portion of their subsistence from the fisheries. The formation of oak, chestnut, hickory, poplar, ash, &c. is larger wild animals have disappeared, only the raccoon and the red and grey fox. Iron abounds in the mountainous and hilly district, and bog iron is found in the marshes along the sea. There is also copper, and, in the primitive rocks of the mountainous districts, gold, silver, and galena.

The inhabitants amounted in 1830 to 320,823. The state is divided into 14 counties and 120 townships. The principal occupation of the inhabitants is agriculture; but the state is now chiefly turned to manufacturing industry, and in some branches a considerable progress has been made, though the distress of late years has caused a depression. Besides numerous iron-works, several glass-houses, tanneries, gunpowder-mills, and cotton manufactures are established, mostly in the hilly country, which is the most populous.

Trenton, on the Delaware, the capital and the seat of government, is a small place, with about 4000 inhabitants, and some cotton manufactures. The largest towns are in the hilly district, where New Brunswick, on the river Raritan, at the head of tide-water, contains 8000 inhabitants, and has some commerce, and a college; and Newark, on the Passaic river, with about 11,000 inhabitants, carries on considerable trade with New York, and has manufactures of carriage-shoes, and saddles. Patterson, on the Passaic, which forms near the town a cataract 70 feet high, is the oldest settlement in the state. The more remote districts on the west side of the bay, have a population of near 4000. The towns of Shrewsbury and Freehold, both on the eastern shores, have some commerce, and each of them about 5000 inhabitants.

At Princeton, between Trenton and New Brunswick, there is a college, called Nassau Hall, and other educational establishments in the United States, and also a theological seminary.

That none of the maritime towns of this state have risen to importance is easily accounted for by the vicinity of New York and Philadelphia, to which the produce of the country is sent. This produce consists of live cattle, fruit, iron, butter and cheese, hams, flax-seed, cider (of which that of Newark is the best), lumber, and some manufactures entirely leather, glass, cotton-wool, and iron-ware.

The soil of New Jersey is well suited to the purposes of agriculture, and it is said by some that the wheat raised in its northern districts is of better quality than that of New England, and that its potatoes surpass those of New York. The state is also rich in coal, iron and copper. In 1668 its copper was sold to the English for 8s. 4d. a ton.

New York was first settled by the Dutch in 1612, in places contiguous to the Hudson river. The Swedes established themselves here in 1626, but their settlements soon fell into the possession of the English, who proceeded to plant New Jersey, and to extend their settlements and commerce. The state was declared separated from New York by the English in 1664. New Jersey was then a part of New York, from which it was definitely separated in 1738. It declared itself early against England in the revolution, and was declared independent by Congress on 2d July, 1776, two days before the declaration of independence by the Continental Congress. The legislature consists of a legislative council of 14 members, and of a general assembly of 60 members. The judges hold office for a fixed number of years. New Jersey supplies two members to the senate at Washington, and six to the house of representatives.

The name is written ד"ע by the early Hebrew writers, and ד"ע by the later; and signifies the abode, or (according to another derivation) the people of peace. At present the city is known throughout Western Asia by the Arabic name of El-huds, which signifies 'holiness.' The Greek and Latin writers it is called Hierosolyma. (Strabo, p. 760; Taclius, Hist. v.)

As the capital city of the Hebrews, and the chief seat of their worship, as well as from its connection with the early history of Christianity, Jerusalem has always been held in veneration by both Jews and Gentiles, in the same causes, even the Mahomedans regard it with interest and respect. Hence the numerous pilgrimages and travels which have in all ages been made to the holy city, and hence the various contests of the middle ages, between the European Christians and the Mohammedans, for its possession.

The situation of Jerusalem is rather singular, and offers many advantages, particularly in a military point of view, which were probably considered more than adequate to compensate its disadvantages as a seat of a metropolis. It is on the very summit of a mountain, and for which many think that Samaria offers a preferable situation. But whatever were its advantages or disadvantages, the metropolitan character was fixed to it beyond all possibility of alteration by the foundation there of the only temple for the formal worship of God which the whole country contained.
The site of Jerusalem may be described, with some latitude, as an elevated piece of ground within a basin of enclosing hills. The separation between this spot and the outward borders of its enclosure is well marked by ravines and valleys, except towards the north, where the natural trend of the site from the surrounding country is less noticed. The enclosed platform extends about 1800 yards from north to south, and (in the widest part) 1100 from east to west; it has a general slope from west to east, so that the town is fully displayed, like a panorama, to those on the banks of the Jordan. A great part of the platform is uneven, and ends, southward, in the elevated termination so often mentioned in Scripture by the name of Mount Zion. This part is excluded from the modern city, not being uniformly considered as a sea-level is very considerable. Of the valleys which surround it, the Kedron is the most signal. The course of the torrent Kedron, is usually called the Valley of Jehoshaphat, and abounds in ancient and modern sepulchres. Beyond it rises a group of hills, of which the highest is the Mount of Olives, towards which the ascension does not include them all. The southern valley is narrower, with more abrupt cliffs, and is indeed a rocky ravine, appearing to have been antequity quarried to supply stone for the buildings of the town. Beyond this valley rises a general slope into the mountainous region which has received the Scriptural names of the Valley of Gibon and of Rephaim, is bounded by a rocky flat, which rises to the north, terminating in a considerable elevation; to this the northern approach is here given.

As the interest of the spot arises solely from its antient history, and no remains exist of the buildings which that history mentions as belonging to the period which it embraces, we have been thus particular in noticing the natural characteristics of the place, since they are less changed, and are often alluded to in the sacred writings and in the histories of the many sieges which Jerusalem has sustained. Some substructions, and the sepulchral excavations in the cliffs around Jerusalem, seem to be all the remains of ancient Jewish works which can now be recognized, unless we be disposed to add the sculptured monuments in the valley of Jehoshaphat, which pass under the name of the tombs of Absalom and Zachariah.

In like manner, building and arrangement of streets, there is no city the history of Jerusalem from other walled and stone-built Turkish towns of the same rank. The attention of pilgrims and travellers is chiefly engaged by the sacred places concerning which numberless volumes have been written, and which it is possible for us to enumerate in Scripture, as connected with Jerusalem and its neighbourhood, of which the site is not very distinctly pointed out; but at certain instances the authority of such indications cannot be considered as extremely uncertain. Very ample accounts of all these spots may be found in the works of Conybeare, Roger, Morison, Suris, Rochetta, and others. In our own language Maundrell supplies a very excellent account, to which the principal additions have been made by Clark, Lockington, Dods, and others. The diagram is abreast and trustworthy authority for the dimensions and plan of Jerusalem is the recently published volume of Niebuhr's Travels, Hamburg, 1837.

The Moslems have appropriated the site of Solomon's temple to their own worship. The renowned Sakkara, built by the Khafif Omar, is an octagonal structure surmounted by a dome, and stands upon an elevated platform paved with polished marble. This is in the midst of a grand quadrangle (1489 feet by 995), which contains at its eastern extremity, that of the temple, the church which was originally the church by which the Christians distinguished the site of the Jewish Temple. The entire locality is fully described by Dr. Richardson, who obtained the singular privilege of admission to the interior. But to descendants of thousands of Christian pilgrims who yearly visit Jerusalem the great object of interest is the church which contains the alleged sepulchre of Christ, to redeem which from indefatigable hands was at first the real, and always the ostensible, object of the Crusades. This church was one of the numerous foundations of the empress Helena. As a whole this extensive structure takes a prolonged oblong figure, with irregular extensions in particular parts for the sake of containing the various spots connected with the death and burial of Christ; for this church is not only supposed to contain the sepulchre, but the scene of the Crucifixion. The probability of these identifications has however, on very sufficient grounds, been much questioned by some recent travellers. A great part of this church was built about thirty years ago, and has since been restored on the former place, but with inferior materials. The other public buildings of Jerusalem are not of much importance, and do not require particular notice.
the great exploit of his life, by intercepting and defeating the Spanish fleet off Cape St. Vincent, in February 14, 1797. The disproportion of force was greater, it is said, than any modern officer had ventured to seek an encounter with, the Spaniards having nearly double our number of ships and more than double the number of guns and weight of metal. However, Jervis, repeating Rodney's method of breaking the line, gained a complete victory, and captured four sail of the line.

In this celebrated engagement the services of Nelson were peculiarly efficient. The actual loss sustained by the enemy was of less importance than the lustre cast on the British arms by a victory achieved against such odds. Thanks, couched in the most flattering terms, were voted by both houses; and Sir Jervis was raised by this act of parasagery to the imperial rank by the title of Earl of St. Vincent and Baron Jervis of Moseaford, and received a pension of 3000l. Shortly after, his presence of mind and moral courage were severely tried by the breaking out of a branch of the Channel mutiny in his fleet; which however was at length suppressed by his judicious and decisive severity. Having suffered for some time from ill health, he returned home in 1799; but in April, 1800, took command for a short time of the Channel fleet, on the resignation of Lord Bridport. He was made first Lord of the Admiralty in February, 1801, on the formation of the Addison ministry; and having through life had a sincere dislike of peculation and jobbing, at once set vigorously to cut down extravagant expenditure and to refer officers' business of course to the immediate superiors and he was accused of rashness, and of crippling the resources of the country by a false economy. Charges of this sort were then very sure to be made against those who exerted themselves to reform old and lucrative abuses. Mr. Pitt's administration, however, which was disfounded at his return to the office, in May, 1804, placed Viscount Melville at the head of the Admiralty. Earl St. Vincent again took command of the Channel fleet in 1806, in Fox's administration, but held it only for a year.

His last appearance in parliament appears to have been in 1810, in the debate upon the navy speech, when he spoke strongly in censure of the conduct of the war by ministers. He was appointed Admiral of the Fleet on the death of George IV's coronation, July 19, 1821, and died, August 15, 1823, in the 90th year of his age. Having no children, the earldom became extinct; but was conferred upon the Viscount, of special grant, descended to his nephew Mr. Ricketta. A public monument was erected in honour of him in St. Paul's cathedral.

Early in the 16th century, the Society of Jesus was chartered by the pope, and its growth was rapid. The society was founded by Ignatius of Loyola, a Spanish soldier who had been converted to Christianity by reading the works of St. Ignatius of Loyola. The society was dedicated to the spiritual and religious welfare of others, and its members were known as Jesuits.

In 1534, Ignatius of Loyola, a Basque officer of noble birth, was granted permission by the king of Spain to assemble a group of men to assist in the religious education of the clergy and laity. Initially, the group was called the Company of Jesus, but in 1540 it was reorganized as the Society of Jesus, under the papal bulls of the Holy See. The society was given the official name of Jesus in 1541.

The Jesuits played a significant role in the Counter-Reformation, helping to spread Catholicism in Europe and beyond. They established schools and universities, and were involved in missionary work in Asia, Africa, and the Americas. They also participated in politics, diplomacy, and intelligence-gathering, and were often regarded as being too powerful and too independent of the papacy.

The Society of Jesus was suppressed by the papacy in 1773, but was restored in 1814. In the 20th century, the society continued to play a significant role in the Catholic Church, and its members were known for their zeal and dedication to the spread of the Gospel.
siasm or visionary devotion, being involved in debt and other civil ties, are not absolute impediments, but the consideration of them is left to the discretion of the general or of any of his subordinates, to whom he may give the power of admitting probationary pupils. The candidate, if approved by the general, is admitted to a first probation, which lasts for a few weeks in one of the houses of the Society, in order that he may become acquainted with the mode of living. He afterwards assumes the dress of the order, and is examined by proper examiners upon the numerous points contained in the "Relatio," or report; and, after confession and receiving the sacrament, he signs a declaration that he observes the rules and discipline thereof, and is then admitted into one of the houses of second probation, or noviciate. Part ii., *Qua ad eos dimittendos pertinet, qui sunt pro professore, &c.* A part of the Society in letters, 1658. Should the examination prove satisfactory, the applicant is shown the constitutions and regulations of the Society, and having made a promise, he is obliged to keep up the general and the local superiors, the trouble and confusion attending such general assemblies can be in great measure avoided, and they can only be kept from voting either for the purpose of electing a new general or for deliberation upon any very weighty affair in the Society, such as the dissolution or transfer of its houses and colleges, &c. In the first case each province deputes its provincial and two more professors, who are chosen by a provincial congregation, convoked for this special purpose, which provincial congregation consists of all the professed of the province who can conveniently attend, and those coadjutors who are rectors of colleges. In the second case, for purposes of deliberation, the father provincial and his coadjutors, and the other governors and some others, making not more than five deputes altogether, for each province. Part ix., *De ipsis quae ad capit Societatis et gubernationem ab eo descendenter pertinet,* concerns the qualifications, powers, and duties of the Proposito Generalis. The general is for life, resides at Rome, is attended by a monitor and five assistants. From his orders there is no appeal: all are obliged to obey him unhesitatingly; he may expel members, or remove them wherever he pleases, inflict punishments, issue regulations, or alter the existing ones. His power is in fact absolute. Part x., *De modo quo conservavi et angere totum corpus Societatis in suo bono statu possit,* contains advice to all and each of the various classes and members, recommending strict discipline, teaching and superintending the general interests, and seeking after dignities or honours, and even to refuse them unless obliged by the Pope; strict morality, moderation in bodily and mental labour, brotherly charity, &c.
The Jesuits found their way into England under Elizabeth, in whose reign several of them were implicated in connection with the queen, for which they were executed. It ought to be noticed however, that De Thou, who is no friend to the Society, states that the conspirator Parry, who is said to have been encouraged in his attempt by a Venetian Jesuit, met at Paris the Jesuit Vaz, who earnestly dissuaded him from his purpose, quoting the opinions of other learned men of the Society, who declared that no man, political or religious, could justify an attempt against the life of a sovereign, however heretical. The Jesuits formed in France instances of the same nature, or rather those of the same species of the Jesuit society; for we may say, that of the Jesuits' society men of various temper and opinions must be found, some of whom, through a strained causticity or fanatical zeal, arrived at totally different views, or from those of the more sober and more honest part of the community.

In the reign of James I. the Jesuit Garnet was tried for having participated in the Gunpowder Plot; and after exhibiting throughout his examination a great aptitude for equivocation, he was condemned and executed. A full investigation of this curious trial is given in vol. ii. of the "Criminal Trials," published by the Society for the Diffusion of Useful Knowledge.

The Jesuits in France form an important part of the history of the Society. The first attempts by Xavier were premature. He had more zeal than information, and the accounts of his numerous conversions ought to be received with caution. The arms of the Portuguese effected more conversions by force in India than Xavier's persuasion. He himself confesses that he could not understand nor be understood by the natives, though he could baptize them. In Japan, where he was unprotected by a Portuguese force, he failed; but he served as a pioneer to prepare the way for a force better qualified for the task, and the Jesuits formed in time numerous Christian congregations in Japan. The history of the Japanese Christians, and their extermination in 1637, is found in Bartoli, "Historia della Compagnia di Gesu," "Il Giappone, seconda parte dell'Asia;" and Garnet, and no narrative of converts appears apparently with greater simplicity. The author does not disguise the faults committed by the Christians, which contributed to their ruin.

In China the Jesuits were likewise successful, and their establishment there has been more durable. Bartoli, in another part of the same work, "La Cina, terza parte dell'Asia," gives an account of their settlement in that empire, and is certainly too friendly and encomiastic. There is a part of the "Lettres Edifiantes et Curieuses," [Hdalb, Du.] Between the years 1581 and 1681, one hundred and twenty-six European Jesuits were employed in the missions of China, many of them men of information, to whom Europe is indebted for a clear and unprejudiced knowledge of the internal condition of that vast empire. The generals of the Society chose men acquainted with mathematical and mechanical sciences, which they knew were in request at Pekin, and thus they obtained a footing and an influence which no other Europeans have ever acquired. Although persecutions burst out against the Christians of China, yet the Jesuits never entirely lost their hold there, and their house at Pekin has continued to exist till our own times. [Amor, in Parker.]

From India Jesuit missionaries found their way into Abyssinia, where Portuguese travellers had penetrated many years before [Alvarez], but the Jesuits went farther into the country, especially in its southern parts, than any other Europeans, either before or after them. Paez and Lobo visited the shores of the Bahar Azrek, or Abyssinian Nile, and Father Fernandez proceeded as far, as Nare, about 8° N. lat. [Telliez.]

In Paraguay the Jesuits had an open field for the display of their arts and principles. Their missionaries went to South America after the country had been devastated by the Spanish conquerors, who hunted the Indians like wild beasts. The Jesuits judged that the poor natives would be highly influenced by the example of the Indians and happy at the same time. They obtained from the court of Spain a declaration that all their Indian proselytes should be considered free men, and that the Jesuits should have the government of the communities of converts what they should form in the territory. The Jesuits did in fact form a flourishing community of Indian converts on the banks of the Paraguay and the Parana, who are said to have amounted to between one and two hundred thousand, and they governed them for a century and a half with a policy that was at once zealous and mild. The Jesuits were at first perfectly celebrate with the Indians, but they soon became dissatisfied with the advantages and to perform, and the produce of their common labour provided for the wants of all. Writers of very different opinions, Raynal, Montesquieu, Robertson, Morellet, Southe, and others, have done justice to the paternal administration of the Jesuits in South America.

Other accounts of that remarkable colony are found in numerous works, in the Letters from Paraguay, in the various histories of the Jesuits' Missions, &c. And it is a remarkable instance of political injustice, that the very community of converts which the Jesuits were enabled by the generosity of the Spaniards, and the unparalleled generosity of the Paraguay,* to extend to so extensive a portion of the New World, has been partially, and in spite of the competition of the French, who have in fact accomplished a subsequent change in the diplomatic relations of the two countries, deprived the Jesuits of one of the most important feudal possessions of the Spanish nation. They have been expelled as an instrument of proselytism, partly against the wishes of the Spanish government, after mature investigation, acquitted them of the charge, and the Portuguese and the Spanish Jesuits have been forced to compete with each other in the same regions. The Jesuits in Paraguay had the advantage of a well-conducted establishment, and the Jesuits in the Spanish colonies of South America should have been made the cause or pretext for their ruin. In 1720, Spain, by a treaty with Portugal, thought proper to give up seven districts of Paraguay to the latter power, in exchange for a territory which the Portuguese had occupied on the left bank of the river La Plata, and the Spanish government ordered the Jesuits and their Indian pupils to abandon their homes and remove to some other part of the Spanish territories. The fathers in difficulty were constantly engaged against them, and the Jesuits lost the advantage of expelling men from the fields which they had by their labour reclaimed from the wilderness; the harsh mandate was repeated, and the Jesuits were prepared to obey. But the nations refused to submit, and the Portuguese and Spaniards, who had been sent against them, were sent against the Jesuits, and a subsequent change in the diplomatic relations of the two countries left the Indians in possession of their country, yet the Jesuits were falsely accused of having encouraged what was termed the southerning of the Spanish government, after mature investigation, acquitted them of the charge, and the Portuguese minister Pombal, a harsh and unprincipled man, believed or affected to believe in the rebellious spirit of the fathers, whom he wished to expel from Portugal, because he was payloads of the same object. Father Mingone, and Father Tapo, of the same order, were allowed to go about the way of his plans and schemes at home. An attempt by some noblemen to murder the king, Joseph of Portugal, was charged upon the Jesuits, because Father Malagrida, one of the Society, was the confessor of some of the guilty.
As proof however could not be obtained against him, Father Malagrida was accused of heresy, on account of some ascetic visionary works which he had published, was condemned by the Inquisition, and executed; and in September, 1759, the missionaries, were placed in banishment by the Pope from the Portuguese territories and for the confiscation of their property. The order was executed with the greatest inhumanity both in Portugal and Brazil, the fathers and brothers Speedy, Farry, and Lavalette, on board ships bound for Italy, where they were landed in a state of utter destitution.

France followed next in the same course of proscription. The Jesuits had made themselves many enemies in that country by their long and obstinate persecution of the Protestant sectarians, and their controversies with that sect had brought much obloquy upon their institutions and moral principles. [Jansenists]. Pascal, in his 'Lettres Provinciales,' had insulted them with ridicule, which has always proved most powerful in France. The parliament of Paris felt an old and hereditary hostility towards them; the minister Choiseul disliked them on personal and political grounds; he had felt and ascertained that their secret influence could often thwart and balance the credit of any minister; besides which, Choiseul was partial in a certain degree to some of the free-thinking philosophers of his time, who had no sympathy for the Society. To crown all, even the king's mistress, Madame de Pompadour, arrayed herself against the Jesuits. That noble lady, as is well known, gave an order for the expulsion more decorous name than that of concubine to Louis XV. She solicited the appointment of lady of honour to the queen, and in order to strengthen her application she chose for her candidate a man of letters, who had gained distinction for exemplary conduct. She pretended that she had dropped all intercourse with the king, and that she was really penitent. De Sacy however did not allow of any expecation: he told the lady that if her penitence were sincere, she must quit the court altogether, as La Vallière had done under Louis XIV. The result may be easily guessed. Madame de Pompadour left the too rigid Jesuit, whom she had, remained at court, and from that moment became a declared enemy to the order. Thus the strict morality of a member of the order of St. Ignatius, which was so laudable object of the Jesuits, so accommodating, contributed to its ruin. A pretence was thus provided for effecting it. Father Lavalette, who was at the head of the missions in the French West Indies, had been speculating in colonial produce. His cargoes were seized by the English, then at war with France. Father Lavalette became a bankrupt for 3,000,000 livres. His editors in France appealed to the parliament of Paris, which, having seen in the constitutions of the Society that it was an institution of the Church of Rome, the only supreme power of the Christian institutions, in its own account, considered Father Lavalette's debt as that of the whole body, and condemned the Society to pay the creditor. An immense outcry was raised against the Jesuits, and the parliament in 1763 declared that an independent body like the Society of Jesus could not, on the admission of one individual residing at Rome, was an institution dangerous and unfit for any well regulated state; the other constitutions made similar declarations, and the partisans of the Jesuits, the philosophers, the courtiers, and the ministers, all echoed the denunciation. At last, in 1764, by order of the king, the Society was entirely suppressed in France, and their property was confiscated; but a small sum was given to the members, who were allowed to return to their homes, on condition of swearing that they would never again practice the Jesuit Society and its institutions. Their fall in Spain took place three years later. Choiseul is said to have contributed to it by persuading the honest but crotchetous Charles III. that an insurrection which broke out against the minister during the work of the Jesuits. D'Aranda, the president of the council of Castile, already possessed against the Society, as the confidant of King Charles in affecting their expulsion. The minister dispersed in the whole, on condition of swearing to the Society, and its institutions, that they would never again practice the Jesuit. The king with his own hand wrote letters to all the governors of provinces throughout the Spanish monarchy in Europe and in the colonies, which were not to open them to any one, but to put them in a box, and to open them only when the Jesuits were expelled from Spain. When the appointed time came, the 31st of March, 1767, the colleges and houses of the Jesuits throughout Spain were surrounded at midnight by troops, sentinels were posted at every door, the bells were secured, and king's commis-
and professors, but still the method and the discipline of the Society were in most instances continued, being found too useful to be abrogated.

The general of the Society, Father Ricci, was confined in the castle of St. Angelo, being put out of still assuming authority over the dispersed Jesuits, and also, but apparently without foundation, of having concealed sums belonging to the Society. Nothing however having transpired against him, he was treated with some courtesy and his life was kept in entire safety till his death, in November, 1775. On his death-bed, before receiving the sacrament, he signed a solemn though mild protest on behalf of the extinct Society, the conduct of which, he said, to the best of his knowledge, had not afforded grounds for its suppression; but he himself gave it as his reason for his imprisonment: he ended by forgiving sincerely all those who had contributed to both. His remains were buried with all due honour in the church of the Gesu, among those of his predecessors.

After the Society had been suppressed for about 30 years, several attempts were made at the beginning of the present century to re-establish it. Many persons in high stations, frightened at the convulsions which agitated the world, imagined that the Jesuits continued they might have proved a powerful means for maintaining order and preventing revolutions by the moral influence which they had over youth. In 1801, Pius VII issued a brief, allowing the Jesuits of Russia to live as a Society, and to have colleges and other institutions, on condition that they should remain under the influence of that Pope, and be subject to his authority. In 1804, according to the wish of the Emperor Napoleon, an agreement was made at the request of king Ferdinand of Naples, the opening of schools and colleges by the Jesuits in the kingdom of the Two Sicilies. Lastly, after his restoration, Pius VII issued a brief, June 24, solemnly declaring the Society a religious order, under the constitution of St. Ignatius, and under obedience to the general chosen by it, to be employed in educating youth in any country of which the sovereign shall have previously recalled or consented to receive them; and Pius began by restoring to them their house of the Gesu, and afterwards the Roman college. The Jesuits have colleges now also in the Sardinian states, in Modena, and in the kingdom of the Two Sicilies, and likewise at Freiburg in Switzerland, where they have a fine college, attended by pupils from France and other countries. In France they had re-introduced themselves in a kind of clandestine manner after the Restoration, upon which a great outcry was raised, and they were finally expelled in 1830. Both the expectations of their friends and the fears of their enemies appear to have been exaggerated, as circumstances have changed too much in Europe to allow the Jesuits to resume anything like their former influence. In Spain Ferdinand restored them, but after his death the populace, alarmed, excited by the decrees of the ultramontane liberals against the monks, took it into their heads, during the prevailed of the cholera, that the Jesuits and other monks had poisoned the springs. Under the influence of this delusion, and the political declension of the Jesuits, and murdered the inmates in their cells. Since that time the legislature has suppressed all monastic institutions in Spain.

In Russia the Jesuits were expelled by a ukase of the emperor Alexander, in June, 1817, upon the charge of intriguing and of making proselytes among the members of the established Greek church.

The act of the 10th Geo. IV., c. 7, which is entitled 'An Act for the Relief of his Majesty's Roman Catholic subjects, or members of other religious orders, communities, or societies of the Church of Rome, bound by monastic or religious vows, from coming into the realm, under pain of being banned from it for life; except natural born subjects, who were out of the realm at the time of the passing of the act. Such religious persons may therefore enter the United Kingdom on obtaining a licence in writing from one of the principal secretaries of state, who is a Protestant, and may stay such time as such secretary shall determine.' The licence, unless the licence is revoked before the end of the six months. The act also makes it a misdemeanor in any Jesuit, or member of other religious body described in the act, to admit, or to aid in or consent to the admission of, any person within the United Kingdom, for the purpose of gaining them, and any such admitted or becoming a Jesuit, or member of other such body within the United Kingdom, shall, upon conviction, be banned from the United Kingdom for life. It is how-
most formidable enemies, is nothing surprising or unreasonable; that the free-thinking philosophers of the eighteenth century, who railed at Christianity altogether, should have railed at the Jesuits, was a thing to be expected, as well as their persons of desperate feelings, or who wished to introduce the popular elements and the constitution of the European States, and who advocated an individual liberty of thought and action, should have rejoiced at the fall of the Society; and lastly, that the Jansenists, whose principles of ethics and whose notions of ecclesiastical discipline differed totally from those of the Jesuits, should have had frequent and bitter quarrels with the latter, is not surprising—but that sincere Catholic priests, monks, bishops, and cardinals, and, lastly, a pope himself, should have engaged in a declaration or an order which asserted the duty of subjection to the pope; that absolute Catholic monarchs should have proscribed the Jesuits, whose precepts tended to keep the people docile and obedient to the temporal power,—this is a singularity which must strike every dispassionate observer of the events of the eighteenth century, and which can only be accounted for by the agency of a variety of remote or hidden causes, and of personal passions and momentary interests which characterized the councils of princes. The Jesuits made proselytes; but this was in conformity to the spirit and received practice of their church: they preached perfect obedience to the decisions of that church and of its head the pope; but in doing this they followed the established custom of those who were subject to the Church defines a heretic to be one who has his own opinion, and follows his own judgment and sentiment in matters of religion; whilst a Catholic, on the contrary, adopts without question the opinion of the church.' And the Jesuits added: "If the EmperorLGauk a declaration of which is not to tend to endanger their safety, and that they condemn and denounce as execrable any doctrine to the contrary which may be found in any works that may have been composed, either by a member of the Society, or by any other person." 2. The Jesuits declared in France that the powers of the State and of the Church were, in their opinion, incompatible, and that consequently they will always teach that the power given to St. Peter, to his successors, and to the church itself, is purely temporal, for which they saw the proof in various circumstances of the state of France declared in their Assembly of 1662, and that consequently they would always be subject to the laws, ordinances, regulations, and usages of the kingdom, in the same manner as all other subjects of the king; and that they will not attempt anything contrary to the rights of the bishops, curates, and university oratories, or make any use of any privilege, whatever it may be, except in so far as it is conformable to the import of the laws and maxims of the kingdom. 4. That if it should happen (which God forbid) that they should be opposed, obstructed, and impeded in their orders by anyone invested with any authority, to do anything contrary to the laws of the church or the state, to their duty to their sovereigns, or to the public welfare or tranquillity, they declare that they hold and ever will hold such decrees or orders to be null, and consider themselves obliged to disobey them." (Réponse aux Assertions, vol. iii., p. 207.) Still as these were not the original principles of the Society, nor conformable to the spirit of its constitutions, and as it could not be expected that they would be assented to, much less adopted, by sovereigns whose minds and sovereigns and their ministers certainly contributed to the downfall of the Jesuits. Their devotion to the pope injured them with the sovereigns, and then the sovereigns adopted a similar interpretation of the Jesuitical orders as pious orders of them, and the bishops and pontifical clergy disdained them as too independent a body. It might also be observed that the Jesuits, though professing to be devoted subjects to the Roman see, were not always very manageable subjects, and that several popes, Clement XI, Innocent XI, Innocent XII, and Benedict XIII, found them at times refractory. They were in reality too powerful even for the pope to meddle with.

A fresh charge against the Jesuits was their accumulating riches, and such suspicion probably stimulated the zeal of several ministers and courtiers against them; but the fact is, that at the suppression of their order, after the most minute inquisition, no treasures were found, no hoarded funds; several of the houses were noted encumbered with debts, and the expelled members of the Society lived the rest of their days in a state bordering upon indigence.

During two centuries and a quarter which elapsed from the time of their foundation to their suppression, the Jesuits rendered great services to education, literature, science, and charity. Throughout all Roman Catholic states they may be said to have established the first rational system of college education. Other orders, such as the Fathers of the Christian Doctrine, instituted in 1571, the Clerici Schoolorum Parum, in 1617, and the Brothers of the Christian Schools, or Ignatians, in 1679, applied themselves more especially to the elementary education of children, though the Jesuits also did not altogether neglect this branch. The colleges of the Jesuits were equally open to the noble and the plebeian, the wealthy and the poor: all were subject to the same discipline, received the same instruction, partook of the same plain but wholesome diet, might attain the same rewards, but in return were subjected to the same regulations. In the school, the refectory, or the play-yard of a Jesuit's college, no one could have distinguished the son of a duke from the son of a peasant. The manners of the Jesuits were singularly pleasing, urban and courteous, far removed from pedantry, and the formalisms and stiffness of their more ambitious obedience, contracted a lasting attachment for their masters. At the time of their suppression the grief of the youths of the various colleges at separating from their teachers was universal and truly affecting. Most of the distinguished French of that age, even those who had turned free-thinkers, and railed at the Jesuits as a society, had received their first education from them; and some of them have had the frankness to acknowledge the merits of the Jesuits, and to acknowledge them with an earnest tribute of esteem and of regret at their fall: even Voltaire spoke in their defence. Gresset addressed to them a most pathetic valedictory poem, 'Les Adieux.' The bishop De Bausset, in his 'Vie de Fenelon,' has Inserted a most eloquent account of the Institution of the Jesuits, the features of instruction, and of the influence which they had, especially in the towns of France, in preserving social and domestic peace and harmony. For the Jesuits did not exclusively apply themselves to the education of youth; grew-up students voluntarily sought their advice concerning their affairs and pursuits in life, which they always freely bestowed; they encouraged the timid and weak, they directed the disheartened and the forsaken towards new paths for their improvement. No one was qualified for the Jesuits' way of life without having been imbued with social and religious views, and they were never permitted to neglect the importance of their religious duties. They might, however, be the case in court politics, their advice was generally most disinterested.

It has been said that they excelled in the art of taming man, which they effected, not by violence, not by force, but by influence, by appeasement, by kindness. The men they taught their pupils. If ever mankind could be happy in a state of mental subordination and tutelage under kind and considerate guardians, the Jesuits were the men to produce this result; but they ultimately failed. The human mind is in its nature aspiring, and cannot be permanently controlled: it cannot be fashioned to one universal measure; and sooner or later it will elude the grasp of any system, whether military or political, ecclesiastical or philosophical, and will seek, at any cost, to gratify its instinctive desires. Among the men of their own society the Jesuits have had distinguished men in almost every branch of learning. In the mathematical sciences we may mention, among others, Jacques, Le Sueur, Bosovich, and Le Maire; in the medical sciences, Scarpellini, Tursellini; in general literature, Pessovin, Betti-1, Traboschi; in ecclesiastical learning and sacred oratory, Bellarmino, Pallavicino, Segneri, Bourdaloue; in
Oriental philology. Kircher, Ignatius Ross, Amiot, Gaubil, etc. The "Fasti Societatis Jesu," the "Acta Sanctorum S. J.," the numerous letters and memoirs of the various missions, may be consulted in order to judge of the value of Jesuit learning and labour.

JESUITS' BARK. [Ginchnola.]

JESUS. [Christ.]

Jesus, son of Sirach, was a learned Jew of Jerusalem, who employed himself in collecting sayings of wise men, from which, with additions of his own, he formed the book of Sirach, of which he was a little of what we can gather from that book. According to Bretschneider, he composed it about 180 B.C.; a date which is rendered probable by the fact that, in enumerating the men of the generation that he mentions, the high-priest Simon, the son of Onias, of whom he speaks in terms which make it probable that he had seen him; while he does not mention the Maccabees.

Another Jesus, a grandson of the former, and whose father's name is also supposed to have been Sirach, translated the book of Ecclesiasticus into Greek, probably about 130 B.C.; for he states in his prologue to the book that he went into Egypt in the reign of Euergetes (Ptolemy VII., Euergetes II.), and there executed the translation.

This is the general opinion; but John thinks it probable that Jesus composed the book of Ecclesiasticus about B.C. 292–289; that the Simon, son of Onias, whom he praises, was the first of that name, not the second; and that his greater reputation for the translation of Ptolemy Euergetes I., who reigned B.C. 247–222, he founds this opinion chiefly on the character of Simon I. agreeing with the eulogy of the writer better than that of Simon II.

(Bretschneider, Liber Jesu Sirraedi; F. Tome's Introd. vol. i. John, Introd. in loc. Soc. Vet. Ecd.)

JESUS COLLEGE, CAMBRIDGE, was founded in 1496, by John Alcock, bishop of Ely, who had obtained from King Henry VII. a grant of the munificence of St. Regund, for the erection of a hall and wards which he had bestowed upon that monastery, as an endowment, and the buildings were converted into a college. It has sixteen foundation fellowships, open to natives of England and Wales, without any restriction or appropriation whatsoever; two of the original foundation, four founded by Dr. Fuller, master of the College, and the rest by various benefactors. Six of the fellows are required to be in priest's orders. On every vacancy of a fellowship the master and fellows nominate two candidates, of whom the bishop of Ely elects one. There is one fellowship, founded by James Stanley, bishop of Ely, to which the bishop has an exclusive right both to nominate and appoint. The mastership of this College is in the absolute appointment of the bishop of Ely; the same benefices, scholarships, exhibitions, and minor foundations, of different annual values, from 70l. to 30s. 6d., have been bestowed on this College from time to time by different benefactors. It has also some annual prizes of a considerable number of members upon the boards of this College, on March 12, 1838, granted by the college, to wit:—

(a) aounci passant consists in the rectories of Gravely and Harlton in Cambridgeshire, of Stanley Regius in Gloucestershire, Tewin in Herts, and Cavendish and Whetfield in Suffolk; and in the vicarages of All Saints and St. Clement's in Cambridge, those of Comberton, Fordham, Guilden Morcen, Hinxton, Swavesey, and Whittlesford, in Cambridgeshire; of Elmstead in Essex, and of Hunding in Suffolk.

(J. B. Jones's Cambridge, pp. 118, 119; Camb. Univ. Calendar for 1838.)

JESUS COLLEGE, OXFORD, owes its foundation to the zeal of Hugh ap Rice, or Price, a native of Brecknock, who, when far advanced in life, meditated the establishment of a college which should extend the benefits of learning to the natives of Wales, an advantage which, previous to his time, had not been provided for at Oxford. With this intention he petitioned Queen Elizabeth that she would be pleased to found one on which he might bestow a certain property. Her Majesty, at whose request, it was granted, and a charter of foundation, dated June 27, 1571, prescribing that the college should be erected by the name of "Jesus College, within the City and University of Oxford, of Queen Elizabeth," etc.; the Society consisted of a principal, eight fellows, and eight scholars; and for their maintenance Dr. Price (for he had now become a Doctor of Civil Law) was permitted to settle estates to the yearly value of 150l. To this the queen added a quantity of timber from her forests of Shotover and Stow. The founder's estates, which he conveyed June 30, lay in Brecknockshire; and he bestowed upwards of 1500l. upon the building, leaving besides some money, which was suffered to accumulate, and which, in the beginning of the seventeenth century, amounted to 900l. Hugh Price, the first rector of Rochester and treasurer of St. David's, died in August, 1574. In 1589 the Society procured another charter of the queen, empowering them to hold possessions to the value of 200l. per annum, and to appoint commissioners for the direction of the same.

King Charles I. in 1636 founded a fellowship to be held by a native of Guernsey or Jersey; Bishop Westphaling and Sir John Watier founded one for a native of England; Sir Francis Rice, bishop of Ely, and Sir John Manoll, Dr. Thomas Gwynne, and others, added fellowships and scholarships for natives of different districts of Wales, or for schools in the principality; and Sir Leoline Jenkins, who was almost a second founder, bequeathed to the College divers lands and tenements for augmenting the then sixteen fellowships and sixteen scholarships, and for founding two additional fellowships and scholarships. One fellowship was afterwards added, by a decree in chancery, out of the residue of Sir Leoline's personal estate. So that the Society at present consists of a principal, nineteen fellows, and eighteen scholars.

Several exhibitions have likewise been founded by different benefactors, of which twenty-four are for natives of the principality, all but one given by the Rev. Simon Assheton, son of the present incumbent of the See of St. David's; three for Caermarthenshire, by Bloom; two for Brecknockshire, or Radnorshire, by Powell; one for a native of Ruthin, or diocese of St. Asaph, by Bishop Farry; one for Caernarvonshire, by subscription, to be called Mr. Assheton Smith's; two by Lord Brounker, of the Grocers' Company; two by the Salters' Company; and some connected with the Cowbridge School foundation by Sir Leoline Jenkins.

The present fabric of this College consists in the rectories of Longworth and Remenham in Berks; of Ashston Clinton in Buckinghamshire; of Bagendon, or Badginton, in Gloucestershire; Searthe in Lincolnshire; Brandeston and Furtho in Northamptonshire; Rufford Pipard and Wighton in Oxfordshire; Uftield in Surrey; Taddington in Worcestershire; Llandysill in Cardiganshire; Clynnog Ystr; and Llan Wuda in Caernarvonshire; and Llanton in Glamorganshire; with the vicarages of Shipston-cum-Tidmington in Worcestershire, and Holywell in Flintshire; the imposition of Badgworth, and the chapelry of Charles Kings, in Gloucestershire; and the impropriations of Holyhead, Bodedern, and Llandrygan with Bodrog, in Anglesey.

The present number of members upon the books of this College is 149.

(Gutch's Colleges and Halls; Chalmers's Hist. of the Univ.; Oxford Calendar, 1838.)

JET, a variety of coal, which occurs sometimes in conglomeration, sometimes in small detrital pebbles, and sometimes in irregular bands, and is usually of a dark brown or blackish colour. starches, and is black in colour, and is often very hard. It is found in corn, and is also in the Prussian substance, in detached fragments. The finer sorts are used for the manufacture of ornaments and trinkets, and the coarser kinds as fuel; it burns with a greenish flame and a strong bituminous smell, and leaves a yellow ash.

JETTREW. [Sawson.]

JETTSAM. [FLOTSAM.]

JEWELL JOHN (born 1522, died 1571), one of the fathers of the English Protestant church. He was born in Devonshire, and educated in grammar-schools in that county, till the age of thirteen, when he was sent to Oxford, where he was entered at Merton College, under the tuition of John Parkhurst, who was afterwards the Protestant bishop of Norwich. When eighteen, he was admitted B.A., and, three years after his admission, he became a college tutor. Henry VIII. was still upon the throne, and some persons were deemed to make himself conspicuous either as an opponent of the principles of the Reformation or as an advocate of them. Jewell therefore kept himself quiet, contenting himself with calculating his advancement, and was regarded by his superiors as a favourite for his pupils; but when King Henry was dead, and the ecclesiastical policy of the country became more decidedly
Protestant under his successor, Jewell declared himself openly a zealous Protestant; and when Peter Martyr, one of the foreign reformers, visited Oxford, and there held a public disputation (as was the manner of those times) with Jewell, the latter was forsook. From this time he became a zealous promoter of the Reformation, both at the university and as a preacher and preacher in the country about Abingdon, where he had a living.

Things however changed; King Edward died, and a new policy was adopted. It was sought to undo what had been done. Jewell, it seems, for a short time somewhat temporized; but he very soon recovered himself, and sought shelter in a different party of the storm. He had, however, those who, in the preceding reign, had been zealous for the Reformation. He joined the English exiles at Frankfurt, and afterwards at Strasbourg, where he again met with Peter Martyr, whom he assisted in the composition of some of his works. The reign however of Mary was short, and with the accession of Elizabeth came brighter prospects to the friends of reform. Jewell returned home, and was almost immediately made bishop of Salisbury. His zeal was not relaxed. He continued both by his preaching and his writing to promote, as before, the Reformation; and to endeavour to extinguish whatever attachment there might still remain, especially in any part of his own diocese, to the older system. He died, in the course of one of these visits, during a vessel to which one edge of brass was secured. He lost his life at Walsingham, in an obscure corner of his diocese, in the fifth year of his age. Camden, whose testimony is worth more than that of any party writer on either side, bears to him this testimony, that he was a man of singular ingenuity, of great learning, and of refined taste.

The writings of Jewell are chiefly controversial, the most remarkable of them being his 'Apology for the Church of England,' and his various Defences of that Apology. These, together considered, one of the ablest defences of the Protestant Church of England that appeared, and were translated into many languages for the purpose of circulation abroad. His writings were collected in a large folio volume in 1609. Copies of this volume were placed in the hands of many of the English churches for the common use of the parishioners, and may sometimes even now be found fastened by a chain to a reading-desk. This honour it has shared with Fox's 'Acts and Monuments of the Church,' and some of the theological writings of Erasmus.

The writings of Jewell are still greatly valued, and are much used in two departments of ecclesiastical controversy, the question between the Church of England and the Church of Rome, and the question respecting the doctrinal and constitutive principles of Church and state; and many Circle of the Continent. Lists of his writings may be seen in the 'Atheneae Oxonienses' of Anthony Wood, where is an outline of his life, the particulars of which have been written more in detail by many persons.

WATCHES is the art of setting diamonds, rubies, sapphires, chrysolites, or other hard stones, in the frame-plates and other parts of watches, in such a manner that the pivots of the watch may act in holes made in these stones. There are two kinds of jewels necessary in watches, one of which is merely a perforation through the stone; the other consists of a perforated piece, and a piece called an end-piece. The latter mode of jewelling is adopted where it is necessary that the end of the pivot shall be more than 6000 or 7000 to the inch, as in some other parts of the wheel whenever by a change of place it is brought into a vertical position, which is important in those cases where the pivot has a rapid motion and considerable weight to sustain, as the pivots at each end of the axis of the balance.

The province of the watch-jeweller is to select the stones, and, except in the case of diamonds, to grind, polish, turn, drill, and set them into the frame or other parts of the watch. The information that is required is contained in a book by a first-rate watchmaker, which is the proper guide of the watch-finisher or escapement-maker. Jewelling is an operation which when well performed adds materially to the durability, and not a little to the elegance of the machine. A watch-jeweller is the name given to one who has acquired this art, or who has the art; and the piece to be jewelled having been made in its proper place by the finisher, the piece is so fixed in a lathe by the jeweller that the hole shall be perfectly concentric to the centre of motion; this hole is then enlarged by turning, and after-wards so formed that a small circle of brass which contains the stone, and which is called the setting, may have a cavity to rest in, without the possibility of its going through the plate, or piece in which the hole has been made. After the stone has been placed in its setting, in such a manner that it shall be flush with the plate, two screws are inserted in the plate so near to the cavity which contains the setting that the edges of the screw-heads project a small distance over the edge of the setting, and thereby secure it in its place. If a stone with its setting is required to be flush with a plate a hole with its setting is required to be made in the plate, and two stones are required for each hole instead of one, and the first or perforated stone with its setting is sunk into the cavity already described a sufficient distance below the surface of the plate to allow of the reception of a second setting, consisting of the stone which has been cut into a small slice cut from a sphere about the size of a shot, its form being plano-convex. The edge of this second setting is left flush with the plate or piece in which the cavity is made, and two screws being inserted, as in the former case, the two settings are secured at once. It must be remembered that the stone last inserted has no hole through it. The mode of forming the stones, &c, will be presently described, but it will be as well to observe here, that in the case of a large stone its setting is already described, with the surface of the setting flush with the surface of the part into which it is placed, but the surface of the stone is so much lower than that of the setting as to allow of a dovetailed notch or slit being cut through it, and along the surface of that part which receives the setting, so that a small brass dovetail pushed tight into this groove or slit secures the setting in its place; and at that part of the dovetail which immediately covers the hole in the stone is required to be cut. This is done in another piece of stock, which forms an end-piece to the hole. When a diamond end-piece is used, it is usually set in steel into which it is brazed, the diamond being a stone which will allow of heat sufficient for that purpose. After brazing, the steel is turned into shape, polished, and blued.

The apparatus necessary for the jeweller to carry on his business are a small lathe, the action of which in its collar should be as light as possible; small gravers for turning the perforated setting, small pliers for the purpose of true division; a lathe, or a wheel, in the front of which there is a spigot on which is placed a grindstone, which is technically termed bort; small mills or circular disks of metal (usually copper) for grinding the stones into shape; diamond-powder of various degrees of fineness for polishing; and turning tools made by cementing small pieces of bort to a notch made upon a small piece of steel, which forms in proper handles. In the preparation of a stone for a jewel-hole, it is necessary first to charge a copper disk about the size of a penny piece, and out of which it is frequently made with bort, which is done by strewing a quantity of it upon the copper, and by strokes and pressure from a hammer embedding it into the surface; the mill thus prepared is fixed unto the mandrel of the lathe, which is put in motion by a band from a rather large foot-wheel, the mill making how many revolutions more than 7000 per minute, the latter velocity being given only in the act of polishing. The stone to be formed is then taken on the end of one of the fingers of the right hand and applied to the surface of the bort-mill, which is kept constantly wet with water applied by the fingers of the left hand, and in a few seconds a flat surface is produced on a stone of the most irregular form; the flat surface is then placed next the finger, and a similar surface is produced parallel to the edge of the former, until the length of the piece is such that this is the whole of it is then placed, by means of cement, on a small chuck in the lathe, and with one of the before-mentioned bort tools turned into the proper shape for setting; the hole is also drilled either with a steel drill and divided by means of small fragments of diamond. In drilling the hole it is necessary to drill the stone about half way through, after which the stone is reversed, and the driving commenced on the opposite side, to prevent the fracture which would be likely to take place if the drill-
ing was continued through to the opposite surface. The piece of stone, or hole, as it is called, is also turned with a hollow or counter sunk to receive the oil necessary for the lubrication of the pivot. A piece of brass, one end of which is turned with a hollow, is charged with a piece of plate-glass, previously charged with a small quantity of diamond-powder and oil. When an end-piece is required the same process is gone through, except that the drilling is omitted, and the spherical side of the stone is polished by using a piece of brass with a hollow end to suit the convexity of the stone. The jeweler also makes use of a small spirit-lamp to heat the cement when he applies it for the purpose of securing the stones upon the chuck, in the lathe, and after one side of a stone has been made true by turning, and the hole drilled partly through the stone as before stated, it is reversed, and fixed perfectly true on the chuck by keeping the cement so warm that the stone may be moved by the pressure of a piece of wood or metal, which the workman makes use of by applying it to the edge or surface of the stone, as required, while the lathe is in motion. Another and very ingenious mode of changing the surface of the stone for the purpose of completing the operation of drilling without detaching it from the cement is the following:—A piece of brass, intended to fit upon the exterior edge, of which a groove is turned to receive a lid or cover, which is turned true, and so formed upon the edge that it will snap tight into the before-mentioned groove with either of its sides upwards, a small wire being taken out of its edge to allow of the insertion of any small tool to remove the cover in the same way as the cover is removed from a watch-barrel. A small hole is made in the centre of this cover, over which the stone is cemented, and when the drilling is completed the cover is removed, and with the stone, is removed, and by snapping in the cover the contrary side outwards the other surface of the stone is presented to the operator, and the act of drilling is repeated; for the cover and groove being perfectly true, the centre of motion of the stone is not affected by the reversing of the cover.

The end-pieces, when real diamonds are used, are what are called rose diamonds, and are procured from Holland, where they are made.

JEW'S-HARP, a musical instrument of the simplest and rudest kind, consisting of an iron frame, resembling in form the handle part of an old-fashioned corkscrew, in the centre of the upper and wide part of which is riveted at one end a small rope or loop, the other end of which, at a free end, is bent outwards to a right angle, so as to allow the finger easily to strike it when the instrument is placed to the mouth and firmly supported by the pressure of the parallel extremities of the frame against the teeth.

Professor C. Wheatstone has shown that the sounds of the Jew's-harp mainly depend on the reciprocation of columns of air in the mouth of the performer, and that these sounds are perfectly identical with the multiples of the fundamental tones of the instrument; but the instrument must necessarily be very incomplete; but by employing two or more instruments, the deficiencies are supplied. A few years ago, an ingenious foreigner, M. Eulenstein, exhibited in London, at the Royal Institution, his very extraordinary talent on the Jew's-harp. He used sixteen instruments of different sizes, and was thus enabled to modulate into every key, and to produce effects not only original, but musical and agreeable.

JUVENAL (Juvenal and JUDAEI in Greek and Latin), in its widest acceptation, is used as synonymous with Hebrews, or Israelites, but in a more restricted sense it means the inhabitants of the kingdom of Judaea as it existed in the time of Jesus Christ, and whose descendants are now scattered over all parts of the world. The history of this people previous to the time of Christ is contained in the Old Testament and in Josephus. Their great ancestor Abraham, called 'the Hebrew' (Genesis, xiv. 13), by birth a Chaldæan, emigrated about 1912 years B.C., with his wife Sarai, his nephew Lot, and his numerous servants and flocks, into the land of Canaan, the modern Palestine, where he settled. (Abra.

[Adapted] At an advanced age his wife bore him a son, Isaac, from whom the Hebrews are descended. Abraham's elder son, Isaac, whose mother was the Egyptian Hagar, was driven from the land of Canaan into the wilderness of Arabia. Isaac married Rebecca, by whom he had two sons, Esau and Jacob, the former of whom was a hunter, and gave up his birthright to his younger brother, who became the greater. These two brothers quarreled long and strongly (Genesis, xxxii. 28), had twelve sons, namely Reuben, Simeon, Levi, Judah, Dan, Naphtali, Gad, Asher, Issachar, Zabulon, Joseph, and Benjamin. From these were descended the twelve tribes of Israel, or the Hebrew nation. The lands of the ancient Hebrews, while some were given by the course of vassalization to be first minister to one of the Pharaoh kings of Egypt, and he settled his brethren in a fertile district of that country, where his and their descendents throne and multiplied so as to form in the course of about two centuries after Joseph's time an agricultural colony subject to the Egyptians, by whom they were disliked as aliens, and treated with great harshness. Being driven to despair, they found a leader in one of their counsels. Moses, who, acting under the special direction of God, led them out of the land of Egypt, to return to that of their ancestors, Canaan, the possession of which God has promised to the posterity of Abraham. The number of the Israelites at their departure from Egypt is stated in the books of the law and of the prophets as being about six hundred thousand men, women and children, with their flocks and hordes of cattle. Being pursued by the Egyptians, they crossed on dry land the northern extremity of the western of the two great gulfs in which the Red Sea terminates, now called the gulf of Suez, and the modern part of the Red Sea. After crossing the sea, into the inmost part of which, which is some miles in depth and breadth, the more of it, which, at the command of the Lord, had divided and made a passage for the children of Israel on dry land, returned at the same command, and overwhelmed their pursuers by sea.

The departure of the Israelites from Egypt took place, according to most chronologists, in 1491 B.C. (Exodus; On Mount Sinai Moses received from God the law of the Ten Commandments, and from that time the Israelites are spoken of as the Hebrews and the Hebrew people. The immediate government of the deity, who, from time to time, made known his will to them through their leader Moses. The books of Moses called Exodus and Leviticus contain the civil law and social regulations, as well as the religious ceremonies. Other laws which were successively promulgated are found in the following books of Numbers and Deuteronomy, so as to form a complete body of institutions for the Hebrew community. Of these laws some were temporary directions, intended for the nomadic state in which the Israelites had spent many years in the wilderness. Others were intended for an agricultural people with settled habitations, and for the time when they should become possessed of the promised land of Canaan. Sanctionary regulations concerning the value of life, the division of land, the equal right of born children and women, are scattered through the code, and are admirably adapted to the people, climate and conditions for which they were intended. The political system was founded upon equality, without any distinction of castes; the whole nation was to be one great body of husbandmen cultivating their own property. The land could not be alienated in perpetuity; every fiftieth year a jubilee was to take place, when all estates which had been alienated were to revert to their original owners, and all bonds of debt were to be cancelled. Hence engagements were set at zero.

One tribe, the descendants of Joseph, was set at zero for religious service: they had no tract of country assigned to them, but were to dwell by themselves in separate towns or villages, scattered through the territory of the other tribes. Out of this class the officiating priesthood was chosen, as well as the scribes and keepers of records, the doctors, judges, and perhaps also the physicians. They were in fact the learned class of the nation: they read the law to the people, and they gave their advice to the nation on the officiating priests in the Tabernacle. One-tenth of the produce of the land possessed by the other tribes was assigned to the Levites for their maintenance. Each tribe had its own chief priest or prince, and the heads or elders of each family constituted an assembly to make laws. Under these circumstances the occasion of great emergency, national assemblies were held; groups were composed of delegates from each tribe, and their resolutions were ratified by the general voice of the people expressed by acclamation. This took place repeatedly during their encampment in the
All who could bear arms were bound to fight in a common defence. The penal laws were severe, but con- 

derate; punishments were fixed for every offence; nothing was left to caprice. Parental authority was enforced, but the death of his son he could not disinherit him; the 

first-born received two portions, and the rest shared equally. A Hebrew could be sold or sell himself as a bondsman 

for life; he might hire himself as a servant for a period, 

and the simplicity of the system forbade the renewal 

of servitude. The discipline of a slave was better than that of a slave among the Romans and the most other nations of antiquity. For 

further details concerning the constitution of the Hebrews the reader is referred to 'The Pentateuch,' especially to the books 

Leviticus and Deuteronomy.

The office of high-priest was bestowed upon Aaron, the 

father of Moses, and his descendants in perpetuity. This 

quality was quite distinct from that of civil leader or judge, 

though in course of time some high-priests occasionally 

served as both in their persons. The high-priest was the 

means of communication between God and the people; 

for he could enter the recess of the sanctuary; in in- 

stant cases they were to enter the temple and consult with the 

priest as consulted upon great national affairs. He had the 

charge of the tabernacle or sanctuary, which was the great 

altar of union among the tribes of Israel.

In the public services, was victorious at the foot of 

Mount Sinai, the Israelites marched towards the land of 

Canaan, and arrived at Kadesh Barnes on its southern 

coast, whence they spied to explore the interior. After 

forty days the spies returned with the informa- 

tion that the country was rich and fertile, but the people 

numerous, and strong, and likely to make a stout 

resistance. The Israelites, long accustomed to bondage, 

were frightened, and they loudly demanded to be led back 

into Egypt, and made it the capital, the soldiers of war of 

conquest, and on the authority of God he gave the 

order for retreat, not however for Egypt, but back into 

the peninsula of Sinai, where they encamped and settled 

with their flocks and cattle after the fashion of the Bedouin 

Arabs. In this wilderness they remained for thirty-eight 

years, the period assigned for their nomadic life, until 

the generation which had come out of Egypt had gradu- 

ally sunk into the grave, and a new race had sprung up in 

the fierce desert, trained to the bold and hardy life of the 

nomad; in his virtues and vices the children of Israel 

were the prototype of the Arabian, and his knowledge, and discipline derived from Egypt. At the 

expiration of this time, they again moved forward to Kadesh, and Moses perceiving that part of the country to be moun- 

tainous, and which presented dangers, they marched into the 

heart of the Dead Sea through the land of Edom and Moab. He 

crossed the Jabbok, defeated the Amorites and the king 

of Bashan, and encamped in a plain near the left bank of 

the Jordan above its influx into the Dead Sea, nearly oppo- 

site to Jericho. Here, after defeating the Midianites and 

driving the conquering territory on the west of the Jordan 

to the tribes of Reuben, Gad, and half the tribe of Manasseh, he 

prepared to lead the Israelites across the river. But before 

this was effected Moses died, after spending the last ad- 

miring the view on the plains of Jericho, and appointing Joshua, a man already tried for his bravery and 

skill, to be his successor. Joshua crossed the Jordan and took Jericho, and gradually conquered the greater part of 

Canaan, exterminating or driving away the former inhabitants. The events of the conquest are related in the book of 

Joshua.

The country was then divided among the twelve 

tribes, substituting for those of Levi and Joseph the respec- 
tive descendants of the two sons of the latter, Manasseh and 

half the tribe of Benjamin, and the tribes of Asher, Zebulun, and the Canaanites remained in strength both in the north and the south, and re- 

peatedly harassed the Hebrew colonists, as we observe in 

the invasion of Sisera (Judges, iv.). On these occasions gal-
the reign of the Captivity.

The captivity of Judah lasted seventy years, after which Cyrus, king of Persia, permitted the Jews to return to their own country. They assembled for that purpose to the number of 42,360, under Zerubbabel, a descendant of their kings, and on arriving in Judea were joined by those of the common people and cultivators of the soil, 421,000 in all, and by their friends who were rebuilding Jerusalem and the Temple, and their neighbours the Samaritans, who inhabited part of the territory of the former kingdom of Israel, offered to join them in the furtherance of the great national work. An offer however was contemptuously rejected by the Jews, who looked upon the Samaritans as alien colonists, although the Samaritans themselves asserted their descent from the tribes of Ephraim and Manasseh. When the Assyrians led the ten tribes into captivity, the Ephramites and Manassites took another course of conduct, and intermarried with the higher classes of the Babylonians, as the Babylonians did with those of Judea, and did not depopulate the whole country; besides which, during the course of more than two centuries, and particularly after the subversion of the Assyrian empire, many exiles or descendants of exiles may have found their way back to their native land. The fact that the Samaritans have preserved the Pentateuch in the original characters, while the Jews on their return from Babylon adopted the Chaldæan form of the sacred volume in their version, is a strong indication of the truth of the assertion of the Jews that they may have been mixed by alliance with Assyrian and other colonists. The Jews however always showed a deadly animosity against the Samaritans, whom they insisted on considering as aliens and idolaters, although they made no effort to convert them to idolatry after that epoch, as in former times. They strictly avoided intermarriage with foreigners, and assumed in every respect that unsocial spirit towards all except their own community for which they have been so often reproached. Their annual festival of the New Year, however, may have been the invention of the Samaritans, while the first fruits of their harvest, which they named Passover, was borrowed by the Jews from their former country.

The character of the Jews themselves had undergone a considerable change during their Babylonian captivity. They had become more exclusively attached to their country and their laws, and we hear no more of their proneness to idolatry after that epoch, as in former times. They strictly avoided intermarriage with foreigners, and assumed in every respect that unsocial spirit towards all except their own community for which they have been so often reproached. Their annual festival of the New Year, however, may have been the invention of the Samaritans, while the first fruits of their harvest, which they named Passover, was borrowed by the Jews from their former country. When Alexander the Great ascended his throne, 336 B.C., when Alexander, after gaining the battle of Issus, subdued Syria and Palestine, his submission was not only voluntary, but the conqueror. After Alexander’s death, Judea fell under the dominion of the Ptolemies, who showed favour to the Jews, and planted colonies of them in their capital Alexandria, and at Cyrene. The high-priests continued in the same direction as the temporal administration of the country. From the Ptolemies Judea passed under the rule of the kings of Syria, under the reign of Antiochus the Great, 198 B.C. Antiochus visited Jerusalem, and confirmed the privileges which the Jews had enjoyed under the Ptolemies. Under the reign of his screwed son Antiochus Epiphanes, owing to the intrigues of several aspirants to the high-priesthood, an insurrection broke out in Jerusalem, which was put down by Antiochus with great slaughter of the inhabitants. After this a settled war now existed, in which no one had attempted before him, to force the Jews to renounce their God and worship Jupiter of Olympus, whose statue was erected on the altar of the Temple. The Jews generally refused. Great cruelties were committed by the officers of Antiochus against the recusants in every part of Judaea, until a spirited resistance began by Mattathias, and continued under his son Judas, styled Maccabee, had the effect of delivering the country from the hateful oppression of the enemy. [See ENTERPRISES.] The Maccabees were a family of heroes. After the death of Judas and two of his brothers who fell in battle, Jonathan, another brother, continued the struggle, and having formed an alliance with Rome, was left at last in quiet possession of Judea. A revolution took place in the kingdom of Syria, which, to his strength and importance. Alexander Balas, who claimed the crown of Syria, offered Jonathan the high-priesthood and exemption from all tribute and taxes, besides other advantages, which he would support him against his rival Demetrius. Jonathan accepted the proposed alliance, and, with a considerable army, he advanced into the territory of Judea, 159 B.C., presented Jonathan with a purple robe, and appointed him meridarch of Judea, a title which, under his successors, was changed into that of king. With Jonathan begins the dynasty of the Asmonean, or Maccabean, dynasty of Judea, which continued for about three centuries, and during which the country resumed a degree of independence and splendour, which it had not experienced since the reigns of David and of Solomon. [ASMONEANS.]

The last of the Asmonean house were put to death by Herod son of Antipater the Idumean, who, with the support of the Romans, became king of Judea, 38 B.C. [HEROD THE GREAT.] He died in the same year that Christ was born, although in the common chronology the birth of Christ was assigned to the period of Herod. The Romans did not venture to say that the Jews at that time were free to erect temples, to pay the priests, to fast and to enter on the observance of the ceremonies of the Eucharist, or to anoint themselves as the Samaritans had done, to keep the law of God, or to have the fortifications of the cities of Judea may be said to have expired. His son Archelaus was appointed ethnarch of Judea Proper, Idumea, and Samaria; his brother Herod Antipas had Galilee and Perea; and Herod Philip, and Nero added to them part of the Trachonitis, Batanea, and Gæoulonitis, east of the Jordan, and another Philip had Iturea. Thus the dominions of Herod were dismembered between four of his sons, who are accordingly styled Tetarchæ in the New Testament. Archelaus was deposed in A.D. 6, by the Romans, who appointed Herod Antipas to answer certain charges brought against him by his subjects, and was banished by Augustus to Vienne in Gaul. Judea thus became a Roman province, or rather a district dependent on the great province or prefecture of Syria, which was usually administered by a Roman governor appointed by the emperors of the equestrian order. This is the state to which Judea was reduced in the time of our Saviour. The Jews however continued to enjoy the exercise of their religious and municipal liberties.

Under the reign of Claudius, Herod Agrippa, grandson of Herod the Great, who had been already appointed by Caligula ethnarch of Galilee, was appointed king of Judea and all the former dominions of his grandfather, but he died in A.D. 44, after reigning twelve years. In A.D. 46, the Roman Senate appointed Joseph, who had been the former high-priest mentioned in chapter xii. of the Acts. His son, called likewise Herod Agrippa, was then a minor, and Judea re-occupied by a Roman governor. In a.d. 53 Claudius gave to Agrippa the provinces east of Jordan, which had belonged to Philip the Tetarch, and Nero added to them part of Galilee. But Judea and Samaria continued to be administered by Roman procurators. Herod however was entrusted by the emperor with the superintendence of the Temple and the right of appointing and deposing the high-priest at Jerusalem, and he occasionally resided in that city, while the Roman governor generally resided at Cesarea. This second Herod Agrippa is the one mentioned in Acts xxv., xxvi., there styled King Agrippa, whom St. Paul of Tarsus met on his first missionary journey, and who was present at the final catastrophe of Jerusalem.

A succession of more than usually rapacious Roman governors, Felix, Albinus, and Florus, had driven the Jews to despair of their liberty. A tumult, which broke out at Cesarea between the Greeks and the Jews, followed by fresh exactions and cruelties of Florus, who seemed to wish to drive the people into insurrection, led the way to an open revolt against the Romans. Agrippa, who, with his sister Bernice, happened to be at Jerusalem, remonstrated with the people on the rashness of the attempt, but in vain, and he withdrew to his own dominions. A party called the Zealots, or fanatics, now obtained the ascendancy over the government, and the people, the feeble Roman garrison was overpowered and massacred. At the same time the Greeks of Cesarea massacred all the Jews in that city, and the Roman governor Florus took no notice of the transaction.

Other cities of Palestine and Syria followed the example of Cesarea by a wholesale massacre of the Jews. The Jews retaliated in those towns of Palestine where they were the majority by murdering the Syrians and Greeks. Cestius Gallus, the prefect of Syria, who had winked at the exactions of Florus, now advanced against Jerusalem with a large army, composed of Romans, Greeks, and many auxiliaries. Cestius was driven to retire, and was completely defeated by the insurgents in his retreat, with the loss of nearly 6000 men. The revolt now became universal throughout Judea and Galilee. Nero, who received the news in Achaia, sent for Vespasian, an officer of tried abilities, and gave him the
command of Syria, a.d. 66-7. Vespasian assembled his forces at Puteoli, where he was joined by Agrippa in his own son Titus. His army, including auxiliaries, amounted to 60,000 men. For one year he employed himself in scouring the country and reducing the strongholds of the Jews. In the following year, a.d. 68, he was advancing on a siege of Jerusalem, when he received the news of Nero's death, followed by the rapid succession of Galba, Otho, and Vitellius. Vespasian kept his troops ready for a more important enterprise than the taking of Jerusalem. That city was already besieged for two years, during which the inhabitants destroyed each other through intestine factions. At last Vespasian, as proclaimed emperor, and having defeated Vitellius and entered Rome, he sent his son Titus to complete the history of the siege of Jerusalem, which was not completed till the following September, when Jerusalem was finally taken and totally destroyed, with its temple: the inhabitants were sold as slaves. The fearful events of that siege are narrated by Josephus. The Arch of Titus at Rome is a standing record of the conquest. The landed property of the country was put up to sale. Still the Jewish population was by no means exterminated from the country, and we find them rising in the reign of Hadrian, and again engaging in the Roman legions, composed by themselves, however overpowered with immense slaughter, and the second desolation of Judea took place. [Barcocheria; Hadrian.] Hadrian issued an edict forbidding circumcision, the wearing of the Mosaic law, and the observance of the Sabbath.

The dispersion of the Jews over the world, which is commonly dated from the destruction of Jerusalem, had in truth been a gradual process that should be considered. The Persians had transplanted the colonies of them into Egypt, Cyrene, and Cyprus; Antiochus the Great settled great numbers in the cities of Asia. In the time of Cicero (Pro Flacco) there were 150,000 Jews in the Jewish community in Italy. A passage of Rabbi, in his letter to Agrippa, enumerates the number of Jews who were settled in Caligula: Sept. Syriaca, Pamphylia, Cilicia, the greatest part of Asia Minor as far as Bithynia, the shores of the Euxine, Maeotès, Thracia, Asia, Attica, the Peloponnesus, Cyprus, and Crete, besides the countries beyond the Euphrates; at the end of the Babylonian captivity many Jews voluntarily remained in Mesopotamia, where they continued in form for several centuries a considerable community, together with the Arameans and Mesiachus, or Grecian Jews, and Christians, with the authority of the Roman empire. The civil code of Jews throughout the Roman empire has been not unconstitutionally connected with that of the Greeks under the Turks. Under the Antinonres and other succeeding emperors the Jewish communities in the provinces of the edict of Hadrian were either reduced or allowed to lie dormant, and the Jews were left to their own usages and rites, being only prohibited from taking proselytes. New synagogues were erected by them, and schools opened in the principal cities of the empire. The Jews by means of the commercial industry acquired considerable wealth, many of them obtained the rank of Roman citizens, and at the same time exemption from military service. During this period of peace, Rabbi Judah, one of them was discovered, written the 'Mischna,' or code of traditional law, in which he embodied the authorized interpretations of the Mosaic law, the opinions, the decisions of the learned, and the precedents of the courts or schools. At a later period Rabbi Ascha, who was called a transgressor of the law, compiled the Gemara, which, with the Mischna, forms the 'Babylonian Talmud,' a work in which the most profound traditions are mixed up with wise precepts, profound speculations, and pleasing moral aphorisms. It was a place of residence and learning for the Jews, one of the most important in the world, helping them to endanger the lives of Christian converts, other prohibiting Christians from embracing Judaism, while a third prohibiting Jews from possessing Christian lands. These were in process of being burnt out in Judaea, and another tumult at Alexandria, in which the Jews were deeply implicated, gave occasion to fresh enactments against them: they were heavily taxed, were forbidden to marry Christian women, and the edict of Hadrian, which prohibited their approaching near to Jerusalem, was formally renewed.

Julian favoured the Jews and proposed to restore their temple. Some extraordinary appearances which are recorded by Ammianus Marcellinus against Julian, who were employed in the restoration, and the death of Julian put an end to the design. Under the following emperors the Jews were protected by the state, though they were assailed by the intertemporal zeal of the more violent Christian churchmen. Laws were passed by Theodosius I., and confirmed by Arcadius and Honorius, recognising the power of the Jewish patriarch to punish the refractory members of their own community, and the prefects were ordered to interfere with his judicial authority. In disputes with Christians both parties put their claims before the ordinary tribunals. Under Theodosius II. the Jews were forbidden from publicly celebrating certain festivals which occasioned collisions between them and the Christians. Theodoric and the other Gothic kings of Italy protected the Jews. During the frequent wars and invasions of that period the Jews had the slave-trade of Europe in great measure in their hands; and several councils and Pope Gregory I. interfered to prevent and punish the交易, which they had thus acquired over the persons of Christians. That wise and humane pope, in his pastoral letters, bewails and denounces this traffic, which was carried on by Jews in Italy, Sicily, Sardegna, and France; he beseeches the bishops to interfere so as to prevent Jews from retaining Christian slaves when a proper price was offered for them. On another occasion he directs that those Christian slaves who had been long in possession of Jewish landlords should be considered as if they were a separate soil, and should not be transplanted or sold away; he also entreated the Frankish kings to banish the traffic in slaves from their dominions. Justinian was one of the first who enacted really oppressive and intolerant laws against the Jews. In litigations between Christians and Jews, or between Christians only, the testimony of a Jew or Samaritan was to be rejected; in the litigations of Jews among each other, the Jew's testimony was admitted, but that of a Samaritan or a Manichean was of no value. By another law, all unbelievers, heathens, Jews, and Samaritans could neither be judges, nor prefects, nor fill any other dignity in the state. Justinian also enacted that in mixed marriages between Jews and Christians, the marriage should rest with the Christian parent. A Jew parent could not disinherit his Christian child. But the Samaritans were treated more harshly: they were entirely deprived of the right of bequeathing or owning their property to their children. Those of the children who embraced Christianity inherited to the exclusion of the rest. Samaritans could not sue in courts of law. Their synagogues were ordered to be destroyed. By a subsequent edict, and on the humane interposition of Sergius, bishop of Caesarea, Justinian somewhat mitigated the rigour of these enactments against the Samaritans, but his son Justin again enforced the original statutes against them. The effect of this persecution seems to have been to extirpate gradually that once flourishing community, the members of which probably embraced Christianity for the preservation of their property. In subsequent history the Samaritans no longer appear as a separate people. In the seventeenth century however a small community was recognised as the inhabitants of the holy Mount Gerizim, who still possessed the law in the old Samaritan character, and their descendants exist to this day.

The Jews however were too numerous and strong to be annihilated, like the Samaritans by imperial edicts; they had even the power of revenge. When Chosroes II. invaded Syria, the Jews of Palestine rose to join the Persians, with whom they entered Jerusalem, then a Christian city, and perpetrated a dreadful slaughter of the Christians, and the Jewish community ordered to pay the captives of their allies the Persians, for the sake of murdering them. The victories of Heraclius however soon put an end to their momentary triumph. The rise of Mohammed brought a unfavourable change to the Eastern Jews; Mohammed endeavoured at first to win them over, but the Jews would not accept VOL. XIII.—R
knowledge a descendant of Hasgar the bondwoman as the greatest of prophets, and Mohammed treated them without mercy in Arabia, where they were at that time numerous. But under the Caliphs his successors they were protected on the easy terms of paying tribute, and, as they made no resistance, they experienced not only protection but even encouragement from their new masters, whom they followed through their tide of conquest along the coast of Northern Africa. They also contributed materially to the triumph of Islam in the Spanish Peninsula.

In Spain, under the Gothic kings, the Jews had experienced the first of those sweeping proscriptions, which they were doomed to suffer in every country of Christian Europe. A series of oppressive laws was passed against them under the third of 'Statures against the Jewish Wickes,' and for the General Extirpation of Jewish Errors.' At last King Sisebut commanded them either to forsake their religion or to leave the country. Many fled, others were thrown into the sea, and a considerable number were said to have taken baptism. The fourth council of Toledo mitigated the rigour of the laws against the Jews by declaring 'that men ought not to be compelled to believe by force, although all who had once embraced the faith must be constrained to adhere to it.' But the eighth council of Toledo, a.d. 653, reinforced the former statutes against the Jews, and following councils enacted more rigorous laws. One hundred lashes on the naked body, chains, mutilation, banishment, and confiscation, were the punishment of those who observed Jewish practices. All conversions were put under the strictest surveillance. The acts of the twelfth council of Toledo concerning the Jews are a complete model of ecclesiastical intolerance and refinement in persecution. Under Henry III., while the Moors were spreading along the shore of Africa opposite to Spain, a general conspiracy of the Jews was reported, and another council passed a decree to disperse the whole race as slaves, confiscate their property, and seize all their children under seventeen years of age, to be brought up as Christians. Many escaped to return with the Saracen invaders, and the munificence of the Mahomedan princes towards them indicates that by their knowledge of the country the Jews had been highly instrumental in advancing the conquest. In Moorish Spain the Jews had really a golden age, which lasted for centuries. There they cultivated science and learning; and the names of Benjamin of Tudela, Isaac of Cordova, Hasdai, the confidant of Abderrahman, and a host of others, attest their proficiency. Rodriguez de Castro (Biblioteca Española) and Vicente Ximeno (Escribano del Rey de Valencia) give notices of the writings of the Spanish Jews. At the same time they were thriving in the East under the caliphs of Bagdad, whose favour they enjoyed, at least till the middle of the tenth century. Charlemagne protected the Jews like his other subjects: they filled municipal offices; they were physicians and bankers; and Isaac, a Jew, was chosen by that emperor as his ambassador to Harun at Rashid, caliph of Bagdad, a mark of consideration of the time. The Jews enjoyed the same or even greater influence under Louis le Debonnaire and Charles the Bald, but towards the end of the latter the reign the clergy began afresh to show their hostility. The Council of Meaux re-enacted the exclusion of the Jews from all civil offices; but it was under the third or Capet dynasty that the Jews suffered real persecution in France. Philippe Auguste, pressed by the want of an empty exchequer, and perhaps also by a passion of fanaticism, which always engagd the Jews with all sorts of crimes, banished, a.d. 1180, all the Jews from his dominions, confiscated their property, and declared all debts due to them to be annulled. About twenty years afterwards the Jews were allowed to re-enter France, which they did not do till the eleventh. This was succeeded by a series of alternate proscriptions and relaxations, continued under the following reigns for about two centuries, until they were finally expelled under Charles VI.

In the same age they suffered under sudden bursts of popular fanaticism. They were massacred at the cry of 'Hep,' 'Hep,' the initials of the words 'Hierosolyma est perdita.' St. Bernard and Pope Eugenius III. loudly reproved these atrocities. In Italy the Jews seem to have been treated better, though they always remained under suspicion, as the Jews of the same age in Spain, and still more in the rest of Europe. They paid a small tax, but enjoyed all the rights of citizenship. They had their own schools, and one of the best. They were allowed to have a church, and a public flame, and to wear distinctive garments. One copy of a twelfth-century ordinance, long continued in force, was to the effect that no Jew, when the rest of the town was in church, should enter the churchyard. They were protected from violence, and were finally granted the privilege of wearing the star which they still bear, as a mark of difference from the Christians.

The Jews were expelled from the kingdoms of France and Germany, and from Italy, and from other parts of Europe, in the twelfth century. In 1215, at the council of Lateran, the Jews of all Christendom were banished from the kingdom of Sicily. In the thirteenth century they were expelled from the kingdom of Naples, and from the Swiss cantons in 1352. In 1492, at the instigation of the Inquisitor Torquemada, banished all from the kingdom. The number of Jews thus expelled from Spain has been vaguely estimated at half a million, and even 800,000. They were rejected from the kingdom of France, and they were driven out of all Christendom. We reach them consented to embrace Christianity in order to remain. Soon afterwards they were driven away from Portugal also with circumstances of still greater barbarity. Many perished, and others took refuge on the African coast. The Jews were expelled from the kingdom of Portugal and that of the Moors or Moriscos, and driven out of Spain of its most useful subjects.

Throughout the dominions of the Sultan the Jews were allowed to settle and follow their trades, though looked upon by them as inferior to the Moslem and Christian. Frederic, called the Great, was not so liberal towards them, for he laid them under peculiar restrictions and disqualifications. In Holland they have long formed a highly flourishing, numerous, honourable, and intelligent community. Napoleon in 1806 assembled a synod in Paris, and submitted to them twelve questions concerning the moral and social doctrines and discipline of the Jews. Their answers having found satisfactory, an ordinance was issued giving the Jews a regular organization, and subordinating them to the same footing as other Franchmen. This system has remained unaltered. The king of Prussia and other German powers have followed the example. In Britain the Jews are subject to many restrictions, and especially the Rabbins.

The Jews in France are reckoned at 20,000; in Italy about 36,000; in the Austrian empire 520,000; in Prussia 135,000, in the rest of Germany 138,000; in Holland and Belgium 80,000, in Great Britain 30,000; in Russia and Poland 658,000; in the Turkish dominions they have been vaguely estimated at 800,000; in Persia they are few and oppressed. There are communities of them at Bokhara and other parts of Tartary, in India, and even in China. In the United States they are reckoned by 3,000,000.

(Jost, Allgemeine Geschichte des Israélitischen Volkes; Millman, History of the Jews; Josephus; Beaunez: Beit Geschichc aller Bestandene tem und noch Bestehenden Religionen; Juden: Beugnot, Dictionnaire; Lindo's Jewish Calendar, containing the chronicle Table, in which some of the dates differ from some of those given in this article.)

It does not appear at what time the Jews found their way into the Roman empire, but it is certain that they had settled important towns in the British isles before the time of Julius Caesar. The Jews, at this period, and as early as a.d. 750. From the time of the conquest the Jews in England rapidly increased in number. Under the first three Norman kings they lived undisturbed, so far as we are informed, and apparently acquired great wealth. But under Stephen and his successors they suffered grievously from the rapacity of the kings and the bigoted intolerance of the people. The cruel persecutions which they experienced from all persons, both Christian and Moslem, poor and rich, are fully attested, not only by their own accounts, but by those of the Muslims. Finally, in the reign of Edward I. about a.d. 1290, all the Jews were banished from the kingdom. Their numbers at that time are conjectured (but on what grounds we are not aware) to have been between 15,000 and 16,000. It was not till after the Restoration, a.d. 1660, that the Jews began to settle in England; and though under the Protectorate, they had entered into negotiations with Cromwell to obtain permission to enter the island, nothing seems to have been done to carry the matter further, and those who subject bring forward no proof of leave being formally granted to them to return. After the Restoration it seems probable that they came in gradually without either permission or opposition, and since that time for about 200 years have been on the same footing as all other strangers entering the country. In the year 1733 an act passed to enable foreign Jews to be naturalized.
taking the sacrament; but the act was repealed in the following session, under the influence of the popular feeling, which was most strongly opposed to the measure of 1758. Since this year no legislative act has passed with special reference to the Jews, and they have lived in the United Kingdom without molestation. It is said, that the number of Jews in London alone is about 15,000, and in the rest of England about 9000. The number in Scotland and Ireland is probably small, but we are not aware that there is any good estimate as to their numbers in these parts of the United Kingdom.

During their residence in England, up to their banishment in the time of Edward I., the Jews were considered as the villains and bondsmen of the king, a relation which was often made use of to explain the power over their persons and property which was exercised by him. Nevertheless, they were treated with an imperious manner. They however could purchase and hold land, subject only to the right of the king, whatever it might be, to levy heavy taxes on them and seize their lands if they were not paid. By the act of the 54th of Henry III. the Jews were declared incapable of purchasing or taking a freehold interest in land, but might hold, as in the case, they were accustomed to hold, houses in the towns, boroughs, and towns where they resided. Another act of King Henry III. provided that no alien, or other Jew or Christian, any houses, rents, or tenements, which they then had, or disposing of them in any way without the king's consent; they were permitted to purchase and hold land, and to hold offices in the cities and boroughs where they then resided, and the law which forbade them to acquire land, and which was further permitted to take lands to farm for their term, was to proceed to the Lords, and to be further inserted among them briefly and simply, not to be taxed with obstinacy.

The Jews, Platina's continuator, subjoins a very critical note, in which he shows the absurdity of the tale, and proves it to have been an invention. But the best dissertation on the subject is that of David Blondel, a Protestant, who completely refutes the story in his Familiar Eclaircissement de la question si une Femme a été assise au Siège Papal entre Leon IV. et Benoit III., Amsterdam, 1649. There are two MSS. which contain the story of the Popes, 'Lives of the Popes' by Martinus Polonus which contains the tale of Pope Joan, and that those MSS. which were written during the life or soon after the death of Martinus do not contain it. It is evident however that the story was in circulation already in the 12th century, long before the time of Martinus, as Etienne de Bourbon de Belleville, a companion of St. Dominie, in his treatise "De Septem Donis Spiritus Sancti," under the head of 'Prudentia,' relates from 'the Chronicles' the story of Pope Joan, and places it about the year 1100, and says that on the discovery of her sex she was stoned to death by the people. Those authorities prove at all events that the Protestants did not invent the tale of Pope Joan, as they have been accused of lately. JOAN I. of Naples, daughter of King Robert of Naples, of the Anjou dynasty, succeeded her father in 1343. She was then only sixteen years of age, handsome, and accomplished. She had been married already some time to cousin Andemar of Hungary, but her subsequent love and tastes did not sympathise together. Andemar claimed to be crowned king and to share his wife's authority, which, by the will of her father, had been left solely to her. His presence and haughtiness excited the hatred, of the Magnates, barons, and the Hungarian guards which attended him excited their jealousy. A conspiracy was formed, and one night, while the court was at Aversa, the conspirators, who were of the nobles near her person, seized and strangled him. Tradition says of this event that the murder seemed little or no doubt that Joan knew of the plot, and that she did nothing to prevent the crime. As soon as it was per-
petrated she repaired to Naples, and thence issued orders for the apprehension of the murderers. Torture was employed to find out the conspirators, but the result of the interrogatories was kept secret. Many persons, high and low, were arrested and put to death, but, public opinion so strongly censured the queen herself in the conspiracy. The same year Joan married her relative Louis, prince of Tarantum. Louis, king of Hungary, and brother of Andreas, came with an army to avenge his brother's death, but the Queen with her troops in her hereditary province of Provence. She repaired to Avignon, and there, before Pope Clement VI., she protested her innocence and demanded a trial. The pope and his cardinals, who, for public gratitude, granted to the papal see the town and county of Avignon. A pestilence then spread, in the mean time had frightened away the Hungarians from Naples, and Joan, returning to her kingdom, was solemnly crowned with her husband in 1351. Joan reigned many years in peace over her dominions. Having lost her second husband in 1351, she married a prince of Majorca, and on his death she married, in 1376, Otho, Duke of Brunswick; but having no children by any of her husbands, she gave her niece Marguerite, the dowager of Gianni, to Charles, Duke of Durazzo, who was himself related to the royal dynasty of Anjou, and appointed him her successor. Soon afterwards the schism between Urban VI. and Clement VII. broke out, and Joan took part of the latter. Urban excommunicated the investiture of the Aragonese King in Sicily, Durazzo, who, with the darkest ingratitude, revolted against his sovereign and benefactor: with the assistance of the pope he raised troops, defeated the queen, and took her prisoner. He tried to induce Joan to abdicate in his favour, but the queen refused, and, in order to protect her successor, she married, of Anjou, brother of Charles V., king of France. Charles then transferred Joan to the castle of Muro, in Basilieca, where he caused her to be strangled or smothered in her prison, in 1389, thirty-seven years after the death of her first husband Andreas.

JOAN II., daughter of Charles Durazzo, and sister of Ladislaus, king of Naples, succeeded the latter after his death in 1414. She was then forty-four years of age, and alread}' the consciousness of the approach of claseness. After her exaltation to the throne she continued in the same course, only with more barefaced effrontery. She however married, from political motives, James, count de la Marche, who was allied to the royal family of France; but the match, as might be expected, proved most unhappy. James was obliged to run away in despair from Naples, and retired to France, where it is said that he ended his days in a convent. Meanwhile unworthy favourites ruled in the court of Joan. One of them was Gianni Caracciolo, of a noble family, saw his influence disputed by the famous condottiere Sforza Attendolo, who, together with many barons who were jealous of Caracciolo, took the part of Louis of Anjou, a grandson of that Louis to whom the crown had been ceded by his father. They sought for support in Alfonso of Aragon, king of Sicily, whom she adopted, and appointed her successor. Alfonso came to Naples, but the sickly Joan having made her peace with Sforza, revoked her adoption of Alfonso, and appointed Louis of Anjou as her successor. Alfonso was accordingly obliged to return to Sicily. The favorite Caracciolo was soon after murdered in consequence of court jealousy and intrigue. Louis of Anjou died also, and was followed to the grave by his wife, who, on her death, appointed René of Anjou as her successor. She died in 1435, leaving her kingdom in great disorder, and with the prospect of a disputed succession and a civil war. [ALFONSO V. OF ARAGON.]

JOAN'NINA, or YA'NINA, a city of Albania, situated in a valley in the heart of that province, on the southern-western bank of a lake, from which a subterraneous stream flows into the Kalamf, the Thymolis (Oaun) of the ancient Greeks, said to be 935 feet above the level of the sea. According to the map prefixed to Colonel Leake's Travels in Northern Greece ('London 1835), it is about 1000 feet above the level of the sea.

The origin and early history of this town are very obscure. It is believed that during the latter period of the Lower or Byzantine Empire it gradually rose to be the chief city of that part of Greece which lay to the west of Mount Pindus. It is probably not very far from the site of the ancient Dodona. In the seventh and following centuries, to the eleventh, the country around became a field of contention between the Byzantine Greeks and the Wallachians and Slavonians, large colonies of whom settled in the district; but Joannina seems to have continued in the hands of the Greeks till the year 1522, when it was mainly regained by the Normans under the remand of Robert Guiscard, who defeated the emperor Alexis Comnenus under the walls of the town. In that war which subsequently desolated Western Greece it was repeatedly suffered, and the town was burned in 1452. In 1453, Emperor Constantine XI. made it his capital. In May 1457 the Turks occupied the town, and held it till 1538. In A.D. 1538 it was given by the Emperor Charles V. to the Duke of Lorraine, but was retaken by the Turks in 1558. It was not until the reign of Charles V. that the town saw any considerable progress. In 1548 the castle was destroyed by the Turks, but was repaired in 1558. In 1571 an attempt of the Albanian Greeks to throw off the Turkish yoke occasioned the expulsion of all Greeks from the town, and in 1576 and 1577 the castle was destroyed, in which Castoria and Kalamf were captured by the Turks. In 1581 and 1582 the town was again assaulted by the Turks, and in 1583 it was given to the Town of Lepanto, which held it till 1593.

The town was commercial rather than manufacturing: the chief commerce was carried on with Constantinople, Russia, Venice and Malta, and with the smaller towns and villages of Epirus, of which Joannina was the centre. The town contained about 2000 inhabitants, of whom 500 were Turks. The town was about 2 miles square, very irregular in shape, and was about 1000 feet above the level of the sea. It was surrounded by a wall 15 feet high, with a moat 30 feet wide and 30 feet deep, running to the sea on each side of the plateau, and surrounding a great extent of the land of the country. The town was in 1593 inhabited by 3000 souls, and was the seat of the bishop of Dodona.

The lake of Joannina is in its greatest length twelve or fourteen miles measured from north-west to south-east; the breadth of the basin varies from three to five miles. The lake is about 13 miles long and 5 miles wide. It is bounded on the north-east by the Mitzikli mountains (a branch of Pindus), which rise with very steep ascent to the height of 2500 feet above the lake; on the south-east by a rocky mountain of moderate height, crowned with the village of Delphi, a very ancient city, which Colonel Leake considers it probable was the ancient Dodona. On the south-west side of the lake is the plain of Joannina, and beyond that a range of low vine-covered hills. Joannina is an island of which is a fishing village, containing, in All's time, two hundred houses: on this island were several convents, frequently used as state prisons; Ali, who had a house out kept a herd of red deer. The lake abounds with fish, among which are eels, perch, eels. The shells of the sea are of great size, sometimes weighing 24 or 25 lbs. in weight; the cels are very fine, and some of them are between six or seven lbs. weight. Myriads of wild-fowl breed in the covert of the lofty reeds which surround the lake.

The lake is very commonly represented as divided into two parts, the north-western part being called the Lake of Lapsis, the south-eastern that of Joannina. But the middle part is rather a marsh than a lake, and is traversed by two long channels which divide the lake into two parts. The Lake of Lapsis is much reduced in its dimensions during the summer, and maize is grown on the desiccated ground. The waters of both lakes are absorbed by subterraneous channels: that which communicates with the river Kalamf is the Lake of Lapsis.

JOB, the Book of, is one of the poetical books of the Old Testament. Its title is taken from the patriarch Job (2:9) whose story it relates. Some critics have supposed, from the nature of the exordium, that Job was not a real person, and that the narrative in the book is fictitious. He however has been generally referred to as the real person by Erich. ([ch. xiv., ver. 16], and James (ch. v., ver. 11); and the style of the book has all the circumstantiality of a real narrative. It has been inferred from his longevity (chap. xli., 32), the office of priest in his own family (chap. i., 5), his allusion to other species of idolatry than the worship of the heavenly bodies (chap. xxxi. 26-28), the silence of the book respecting the history of the Israel-
JOE

The Assyrans or the Babylonians among the enemies of Judah, but only Egypt and Edom (ch. iii., 19). Other opinions have referred him to the reign of Jerom (n.c. 895—883), and to that of Manasseh (n.c. 697—642).

The prophecy of Joel may be divided into two parts. In the first he describes a famine caused by the ravages of insects, and exhorts the people to repentance; denouncing still greater judgments if they continue indifferent, and promising the return of prosperity if they attend to his warning. The second part, beginning at ch. ii., ver. 28, alludes to events much more remote. The prophetic passage in ch. ii., ver. 25-32, is quoted by the apostle Peter as accomplished by the miraculous gift of tongues on the day of Pentecost (Acts, ii. 1-11). The remainder of the prophecy is supposed to be at present unfulfilled.

The canonical authority of this book has never been disputed. It is established by other quotations in addition to the remarkable one just mentioned.

Bishop Lowth (Preface, xx.) remarks on the style of Joel: "He is elegant, perspicuous, copious, and fluent; he is also sublime, animated, and energetic. In the first and second chapters he displays the full force of the prophetic poetry, and shows how naturally it inclines to the use of metaphors, allegories, and comparisons. But while we allow this just commendation to his perspicuity both in language and arrangement, we must not deny that there is sometimes great poverty observable in his subject, and particularly in the latter part of the Book.

Rosenmüller's Schola; Horne's Introduction; and 1st of commentators in Watt's Bibliotheca Britannica.)

JOHANNA. [ANTZAN.]

JOHANNIS, DE, M. N.S.

JOHN, SAINT, THE BAPTIST, son of Zachariah, a Jewish priest, and Elizabeth his wife, who was a near relation of Mary the mother of Jesus Christ, was born to them in their old age. The sacred office was assigned to him by the Lord for being the precursor or herald of the Messiah. The history of the public ministry of Jesus begins with the acts of John the Baptist, whom we find withdrawing himself from the ordinary affairs of life and retiring to the desert country, so as to be completely isolated from the world. There, he lived in a desert, preaching a spirit of repentance, enforcing his exhortations by the announcement that the Kingdom of Heaven was at hand, and requiring of those who professed to receive him as their instructor that they should submit to the rite of baptism.

Amongst those who came to him and were baptized by him was Jesus Christ, who at his baptism was announced, both by the Baptist himself and by a voice from heaven, to be the Son of God, the Messiah. From this time the young John till we find him in prison. He had ventured publicly to reprove Herod the king for an act of great impropriety. Herod had married Herodias who was the wife of Philip, tetrarch of Iudaea, his own brother. The marriage of herodias was resented more violently by Herodias than by Herod. The history is related by the Evangelists with all particulars. Salome, the daughter of Herodias, had so pleased Herod with her dancing at a public entertainment given by him, that he in an oriental influence of profound obligation said publicly, that he would give her whatever she should ask, even to the half of his kingdom. The little girl, for she was then extremely young, instructed by her wicked mother, asked the head of John the Baptist. Persons were immediately sent to the prison in which John was confined, who appealed him, and delivered the head to the young princess, who carried it in a dish to her mother.

JOHN, SAINT, THE APOSTLE AND EVANGELIST. Among the persons who at the commencement of his ministry joined themselves to our Saviour were two brothers, named James and John, the sons of Zebedee. They were both admitted by him into the number of his Twelve Apostles, and John was throughout distinguished by his love of his Master. He was with Peter and James in the account in which he left the ministry of Jesus, as the disciple whom Jesus loved: and whenever a very few only of the apostles were to be employed by Jesus, or to accompany him, John was always one of the number, James and Peter being usually replaced by Judas and Thomas. At the Last Supper we find him leaning on the bosom of Jesus. He attended Jesus in the garden and in the hall of the high-priest. He accompanied him to Calvary, and when Jesus was hanging on the cross John drew near, and

JOE

The language is Hebrew, with a considerable admixture of Aramaic. The author is unknown. The arguments already stated with respect to the age at which Job lived are considered by most critics to prove the very high antiquity of the book. Lightfoot and others have supposed that Elihu was the author. This theory is founded chiefly on a translation of ch. xxxii., 16-17, the correctness of which is very doubtful.

A very general opinion among critics ascribes it to Moses. Dr. Mason Good has concluded, from the character of the book, that the writer must have possessed certain qualifications of style, knowledge, country, and age, which are to be found in Moses alone. The same writer has collected a number of passages in which he sees a resemblance to the sentiments and style of Moses (Good's Book of Job, Pref. iii., and xx.). Among other scholars, it is supposed Job himself, or some contemporary, to have been the author, and that the book fell into the hands of Moses while he lived in Iudaea, and was used by him to teach the Israelites patience and submission to the will of God, either during their bondage in Egypt, or in their subsequent wanderings. It is alleged that this hypothesis solves all the difficulties arising out of the internal character of the book, and accounts for its admission into the canon of the Hebrews.

The book consists of twenty-one chapters, marked, that the style of Job differs widely from the poetical style of Moses, being much more concise, and more accurate in the poetical construction of sentences. Several critics, among whom is Eichhorn, assign to the book a date earlier than that of Moses. Schultens, Lowth, and others suppose Job himself, or some contemporary, to have been the author, and that the book fell into the hands of Moses while he lived in Iudaea, and was used by him to teach the Israelites patience and submission to the will of God, either during their bondage in Egypt, or in their subsequent wanderings. It is alleged that this hypothesis solves all the difficulties arising out of the internal character of the book, and accounts for its admission into the canon of the Hebrews.

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while the miraculous darkness struck fear into the hearts of those who were employed in the work of death, he entered into conversation with John, the companion of his last journey, and the younger mother Mary. This dying request of our Lord the apostle seems to have regarded as a sacred injunction, for he took her from that time to his own house.

After the resurrection of Jesus he was again distinguished by the name of John: and when Jesus had ascended to heaven, and the interests of the Gospel were committed especially to those who had been chosen by him out of the world, John became one of the leading persons in the church; acting in concert with the other apostles, and especially Peter and James, in the history in all at the Apocalypse, to notice what was done by the other apostles, and is confined to the travels and labours of Saint Paul.

Saint John's labours in the church were chiefly among the inhabitants of Syria and Asia Minor, and no doubt he had occasion to plant Christianity in those provinces, where for a time it flourished greatly. But Christian antiquity does not present us many particulars of the labours of the apostles, and we learn from it respecting John little more on which we can safely place than that he resided at Ephesus in the latter part of his life, and died in extreme old age.

Two pleasing stories are related of him by early Christian writers, deserving of regard: one, that when too feeble to do more, he was carried into the abodes of God's righteous ones at Ephesus, saying, as he went along, 'My little children, love one another.' The other respects his conduct to a young man who had joined a party of banditti. But we cannot believe that he was thrown into a cauldron of boiling oil and came out unhurt, or trust arises, and we question the sufficiency of the evidence.

There is however little reason to doubt that he was at one period of his life banished to the island of Patmos, and that there he wrote the book called the 'Apocalypse,' or 'Revelation.'

There are also preserved three Epistles of his: but the most valuable of his writings which have descended to our time is the 'Gospel according to Saint John.' This Gospel contains the other three, and is supposed by those who have considered it to have been written with some especial purpose, either as a kind of supplement to the other Evangelists, which was the opinion of Eusebius, or with a view to the refutation of certain erroneous notions respecting our Saviour which had begun to prevail before the long life of Saint John was brought to a close. But with whatever design it was composed, it must ever be regarded as amongst the most valuable testimonies of character, and of the Gospel, that have come down to us.

JOHN, king of England, surnamed Santerre, or Lackland, a common appellation of younger sons whose age prevented them from holding fiefs, was the youngest of the five sons of Henry II, by his queen Eleanor of Guinevere, and the son of King's Mother, who was born about the 23rd of December, 1166. In his youth he was created by his father earl of Montague in Normandy; and in 1176 he was contracted in marriage to Johanna (or Hadwisa, as she is called by some authorities), the youngest daughter of William earl of Gloucester (son of the great Earl Robert, natural son of Henry I.), who thereupon made Johanna his sole heir. The marriage was actually celebrated, 29th August, 1169. Henry, having after his conquest of Ireland obtained a ball from the pope authorising him to invest any one of his sons with the lordship of that country, conferred the dignity upon John in a great council held at Oxford in 1178. In March, 1185, John went over to take his part in the war which was then going on around the government of his dominions; but the insolent demeanor of the prince and his attendants so disgusted and irritated the Irish of all classes, that his father found it necessary to recall him in the following December. John however was his father's favourite son, in part perhaps on the circumstance that his youth had prevented him from joining in any of the adventures of his brothers; and it is said, that a suspension began to be at last entertained by Richard, when, of the five brothers, he and John alone survived, that Henry intended to settle the succession of his kingdom at his death. On the one hand the authority of this story, it was chiefly to prevent such an arrangement that Richard, joining Philip of France, flew to arms in January, 1189; but if so, it is difficult to account for the fact that John himself was found to be upon this occasion in conference with his elder brother, a discovery which was only made by their heart broken father upon his deathbed. [Harvy II].
strength in those countries. Arthur however, while he was besieging the castle of Mirabeau in Poitou, which was held by John's mother, Queen Eleanor, was taken captive by the citizens of La Rochelle, who, perceiving he remained unprepared to engage, sent him a flag of truce. This, however, being murdered by John's own hand, an imputation which the latter never took the trouble to deny, Arthur's sister Eleanor, to whom he devoted his claim to the inheritance of the English crown, was carried over to England, and continued in prison in which person she remained until her death in 1241. Notwithstanding the capture of Arthur however, the war in France went wholly against John, and before the end of the year 1294 Normandy, Anjou, Maine, and Touraine were rent from the crown of England, and re-annexed to that of France, from which they had been separated for nearly three centuries. Two years afterwards John made an unsuccessful attempt to recover what he had thus lost.

While still at war with France, John became involved in another contest at home, which was eventually attended with still worse fatal results. By insisting upon the right of the crown to nominate the archbishop of Canterbury, on that see becoming vacant in July, 1205, he drew upon himself the displeasure of the English clergy, and of the able and imperious pontiff, who then presided over the Western Church. [Innocent III.] John paid little regard either to the interdict under which his kingdom was laid in 1209, or to the bull of excommunication which followed yearly from Rome, against that to despoiling him and absolving his subjects from their allegiance, which Innocent launched at him in 1212. In the midst of all this ecclesiastical thunder he chastised the barons of his kingdom, when it suited himself or others. He exacted further hostilities by the payment of a large sum of money, and the delivery of his two daughters, with other hostages, as pledges for his observance of his engagements; he passed over to Ireland in 1216, and reduced a rebellion of the citizens of Dublin, on its rejection, by the archbishop of Wales, and compelled Llewellyn, the prince of that country, to make his submission. In the last-mentioned year he also put down a conspiracy of certain of his barons, which had been formed with the object of seizing his person.

At last however Innocent had recourse to more effective arms than his apostolic artillery. At the instigation of the pope, Philip Augustus prepared to invade England; and though the cities and towns were in no danger with some spirit, by conducting an army to France in April, 1213, he soon returned home without having done anything; and in the despair produced by the universal hatred in which he found himself to be held by his subjects, he, Long alienated and disgusted, he consented, at Dover, 13th May, 1213, in an interview with Pandulf, the papal legate, to submit to all the demands of the holy see, of which the admission of the pope's nominee, Stephen de Langton, to the archbishopric of Canterbury, was the first. Two days after he made over to the pope the kingdoms of England and Ireland, to be held by him and of the Roman Church in fee, and took to his holiness the ordinary oath taken by vassals to their lords. It was now agreed that the bull be an oblivion of the past on both sides, that the bull of excommunication should be revoked by the pope, and that of John's disaffected English subjects those who in confinement should be liberated, and those who had fled or been banished beyond sea be permitted to return home.

Philip, whose ambition was mortified by this pacification, would have persisted in his project of invasion, even in opposition to the express commands of the pope, but he was compelled to disband his army by the result of a battle fought in Poitou, in which he lost 300 of his ships and vessels, and 5000 horses and men, and 5000 prisoners. The news of this great victory in the naval annals of England, in which 300 of his vessels were captured, above 100 burned, and all his military stores and provisions, with 12,000 of his men of conscription, taken from him.

One effect of this victory however was immediately to beg in John a hope of being able to extricate himself from his late engagement in favour of the exiles and outlaws; and perhaps also from the vassallage in which he had bound himself and his kingdom to the pope. In this view he at first attempted to raise an army with which to invade France, before doing anything in fulfilment of his promises to the barons or the Church; but finding that the opposition of the barons was too strong, in April, 1215, he changed his course of proceeding, and temporised with both, until, by further submissions to the new papal legate, the Cardinal Nicholas, who arrived in England in the end of September, if not in the beginning of October, he at least converted the pope himself, from being the head of the confederacy against him, into his friend and supporter. The Primate Langton however, greatly to his honour, still continued to make common cause with the barons; Langton, the day after the pope's arrival at London, on the 26th August, proposed to the barons to rally round the charter of Henry I., and have solemnly sworn them to hazard their lives in the maintenance of the rights and liberties therein recognised. For a short time the commemorating strife was appeased by an award of the pope; soon after which, in June, 1214, John hastened over to France, where however the great victory of Bouvines, gained by Philip, 25th July, over the allied army of the English under John's bastard brother, the earl of Salisbury, to the force of the emperor, of the earl of Fiandra, and of the earl of Boulogne, compelled the English king to sue for a cessation of hostilities. On the 19th October a truce was arranged between the two kingdoms, to last for five years. But the barons' affairs were now going on so well, that they had an opportunity for the renewal of their demands, of which they hastened to avail themselves. Their first memorable assemblage, in which they concerted their plans, was held, under presence of celebrating the festival of the Saint, in the archbishopric of Canterbury, in November. Before they separated they advanced one by one to the high altar, and laying their hands upon it, took a solemn oath to withdraw their fealty, and levy war upon the king, if he should persist in the satisfaction of his demands, and never to lay down their arms till they had obtained from him a charter confirming the national liberties. Their petition was formally presented to John in the Temple, at London, on the feast of the Epiphany, the 6th of January following their meeting; after an engagement of four days, John, who at one took the part of John, prepared for war. In the beginning of May, 1215, the barons having mustered their forces, which they put under the command of Robert Fitzwalter, and designated by the title of the army of God and of John's Holy Church, proceeded to the estates of Northampton. After wasting a fortnight however they were obliged to retire from this fortress; but having then marched to London, they were gladly received by the citizens and others. 17th May, 1215, the Earl of Warwick and the Earl of Gloucester summoned John to come thither, and to seek a solution of the differences between them. John's first object was to establish the concession and signature by John of the Great Charter, embodying all the barons' demands. [Magna Charta.]

Scarcely however had the charter been thus extorted, when John set himself to work to endeavour to escape from its obligations. The suspicion was excited by his general conduct, and especially by his introduction into the kingdom of numerous bodies of foreign troops, again called up the barons in arms by the following October. At this time the new contest was carried still stronger in favour of the king by the intelligence was followed by other papal bulls suspending Archbishop Langton, excommunicating the chiefs of the barons by name, and laying the city of London under an interdict; and John was soon joined to this by the barons of the same counties almost without encountering any resistance. While one part of his army, under the command of the earl of Salisbury, wasted the counties around the metropolis, where the chief strength of the barons lay, he himself, with another force, proceeded to the north to rally back their ally, Alexander, the young king of Scotland, pursuing him as far as Edinburgh, and reducing to ashes every town, village, and castle, on both sides of the border, that fell within the range of his furious progress. In these
disastrous circumstances, the barons congregated in London resolved, after much debate, upon the desperate expedient of offering the crown to Louis, the dauphin of France, as the only chance left to them of preserving any part of the national liberties. Accepting the invitation, Louis set sail from Calais with a fleet of six hundred and eighty sail, and, on the 30th of May, 1216, landed at Sandwich. John retired to the west at his approach, and the French prince, after attacking and easily reducing the castle of Rochester, immediately fell back to the capital, as the contest now turned. The people in all parts of the country eagerly rallied around Louis; even his foreign auxiliaries, most of whom were Frenchmen, began to quit the standard of the English king, and either to join him or go over to him. At this critical moment arrived the news of the death of John's powerful friend Pope Innocent III. (16th July). Still however most of the places of strength were in his hands; and some months were spent to little purpose by the adverse party in attempts to reduce Dover, Windsor, and other castles which were occupied by his garrisons. Meanwhile, in the disappointment produced by the protraction of the war, jealousy of their foreign allies was beginning to spread among the insurgents; and it is very doubtful what the issue of the struggle might have been if the life of John had been prolonged. But on the 14th of October, as he was attempting to ford the Wash at low-water, from Cross-keys to the Foss-tyke, and had advanced almost to himself with the fleet, the tide suddenly swept away the carriages and horses that conveyed all his baggage and treasures; on which, in an agony of vexation, he proceeded to the Cistercian convent of Swineshead, and was that same night seized with fever, the crisis of whose illness province proves to be inflammation and irritation and fatigue, but which one account attributes to an imprudent indulgence at supper in fruit and new cider; another to poison administered to him by one of the monks. Although in very ill, he was conveyed the next day in a litter to the castle of Stamford, and thence on the 16th to the castle of Newark, where he expired on the 18th, in the forty-ninth year of his age, and the seventeenth of his reign.

Our historians paint the character of John in the darkest colours; and the history of his reign seems to prove that to his full share of the ferocity of his race he conjoined an unsteadiness and volubility, a susceptibility of being suddenly depressed by evil fortune and elated beyond the bounds of moderation and prudence by its opposite, which give a littleness to his character not belonging to that of any of his royal ancestors. He is charged in addition with a savage cruelty of disposition, and with the most unbridled profanation of the enriched.priesthood; while on the other hand so many services are not allowed to have been relieved by a single good quality. It ought to be remembered however that John has had no historian; his cause expired with himself, and every writer of his story has told it in the spirit of the opposite party. In respect of that which has generally been accounted the act most decisive of the baseness of his character, his surrender of his kingdom in vassalage to the pope, we may observe that Dr. Lingard has lately advanced some considerations tending to show that it does not deserve to be viewed in the light in which it has been usually regarded.

The children of John by his queen Isabella of Angoulême were:—1. Henry, who succeeded him as Henry III. 2. John, born February 5, 1208, Lord of Craon, 1226, elected king of the Romans 1227, died 2nd April 1273; 3. Joan, married June 25, 1221, to Alexander II. of Scotland, died March 4, 1239; 4. Eleanor, married, first, 1225, to William Marshall, earl of Pembroke, secondly, 1238, to Simon Montfort, earl of Leicester; and 5. Isabella, born 1214, married 20th July, 1235, to Frederick II. emperor of Germany, died 1st December, 1241. Several natural children are also assigned to him, none of whose names have been recorded.

JOHN OF GAUNT. [EDWARD III.; HENRY IV.]

JOHN, Kings of Portugal. [PORTUGAL.]

JOHN OF SALISBURY finds a place, and very deservedly, in every catalogue of learned Englishmen. His most celebrated work, Concerning Heresy (a name very common but an incorrect mode of speaking; is called a dark age; for an age cannot possibly be dark which had such men living in it as this John, Peter of Blois, Thomas & Becket, and many others, especially historians, whose writings still remain to show what kind of men they were, and to attest the great extent of their reading and the general intellectual power which they had acquired. John had studied at Oxford, but he visited also the universitie of Paris. It is said that we may trust Leland's account of his excellent authority, he was intimately acquainted with the Latin and Greek writers: he had some knowledge of Hebrew; he was skilled in the mathematics and every branch of natural philosophy. He was also in his day and age a fortunate orator and an eminent poet. Leland further says of him that he was possessed of the most amiable dispositions, ever cheerful, innocent, and good.

He was much connected with Becket, archbishop of Canterbury, the murder of whom is one of the dark stains on the reign of Henry II. Peter of Blois, in the twenty-second of his Epistles, which are collected and printed, calls John the eye and hand of the archbishop. John became himself bishop of Chartres in 1184. He died in 1182.

His principal historical writings were Lives of two archbishops of Canterbury, Anselm and Thomas & Becket. But the work by which he is best known to scholars, for which it contained, being, so far as he would have it found its way into the vernacular literature of his own or any other country, is entitled 'Polyrhetion, de Nugas Curialibus et Vestigiis Philosophorum,' in which he describes the manners of the great, speaking not unfrequently, if not frequently, in the language of the day. The work was published at Paris, 1513, and another at London, 1595. A large catalogue of his writings may be seen in Pitz and other writers of that class.

Mr. Berington has devoted several pages to John of Salisbury in his 'Literary History of the Middle Ages,' 1810, pp. 315-320.

JOHN HYRCANAUS. [HYRCANUS, JOHN.]

JOHN I., a native of Tuscany, succeeded Hormisdas in the see of Rome, a.d. 596. He was employed by King Theodoric on a mission to the Emperor Justin of Constantinople; but after his return, from some unknown cause, he incurred the displeasure of Theodoric, and was put in prison, where he died, a.d. 596.

JOHN II. succeeded Boniface II. a.d. 592, being elected by the clergy and the people of Rome, and confirmed by King Athalaric, for which confirmation a certain payment was fixed by an edict of the same king. He died in 593.

JOHN III. a native of Rome, was elected to succeed Pelagius I. in the year 615, and was confirmed by the exarch of Ravenna in the name of the Emperor Justinian. Two French bishops, of Embrun and of Gap, having been deposed by local councils, appealed to John, who ordered them to be restored, and thence to return to France, the king, enforced in opposition to the French clergy, who asserted their independence of the Roman see. (Dupin, De Antiqua Eccles. Discip.) John died in 574.

JOHN IV., a native of Dalmatia, succeeded Severinus (574-590) and restored the see of the Monothelites (Rutychians), and died in 642.

JOHN V., a native of Syria, succeeded Benedict II. in 686, and died after a few months.

JOHN VI., a native of Greece, succeeded Sergius I. in 709. In a council which he held at Rome he accosted Wilfred, archbishop of York, of several charges brought against him by the English clergy. He died in 705.

JOHN VII. also a Greek, succeeded John VI., and died 717.

JOHN VIII., who has been styled the IX. by those who believed in the story of Pope Joan, whom they style John VIII. [Joan, Pope], succeeded Adrian II. in 872. He crowned Charles the Bald emperor, and after him also Charles the Fat. He confirmed the exaltation of Photius to the see of Constantinople. He had disputes with the marquises of Tuscany, and the dukes of Spoleto, and died in 872, after a busy pontificate.

JOHN IX. was elected in 898, held two councils at Rome and Ravenna, and died about the year 900.

JOHN X. succeeded Land in 915. He crowned Boemarius as king of Italy and emperor. The Saracens from Africa, who had landed in Italy and fortified themselfs at Benevento, and their frequent risings into the Roman territory. John, united with Boemarius and the dukes of Benevento and Naples, marched in person against them, and completely routed and exterminated them. The famous Marozio, a Roman lady of very loose
conduct, and her husband, Guido, duke of Tuscany, ruled at Rome by force and intrigue. John, having had repeated encounters with Guido, Cane della Scala, and the Visconti, took refuge in his palace of the Lateran, and threw himself into prison, where he was put to death, according to report, A.D. 927.

JOHN XI., son of Marozia, succeeded Stephen VIII. in 960. His brother Alberic headed a revolt of the Romans against the bishop of Rome, who roused the people, and his new husband King Hugo was driven away from the city. John himself was closely watched by his brother, and died in the year 936, not without suspicion of violence.

John the Second James, son of Alberic and grandson of Marozia, succeeded Agapitus in 956, when he was only in his 19th year. In 960 he crowned at Rome Otto I. of Germany as emperor and king of Italy. But some time after the complaints against his licentious conduct and cruelty in his patrician authority, there and there in an assembly of the clergy caused John to be deposed and Leo VIII. to be elected in his stead, in 963. In the following year however John re-entered Rome at the head of numerous partisans, drove Leo, and continued many acts of cruelty. Otho, who was then in the north of Italy, was preparing to return to Rome at the head of his troops, when John fell suddenly ill, and died in 964.

A plain, in a note to Florentia's account of Pope Joan, suggests that he was born in his mother's house. The same mistresses had one called Joan who exercised the chief influence at Rome during his pontificate, may have given rise to the story of "Pope Joan."

JOHN XII., bishop of Narni, succeeded Benedict V., 996. He appointed the emperor Otho, but soon after the Romans revolted and imprisoned John. Otho however marched to Rome, reinstated John, and dragged thirteen of the leaders of the revolt. John crowned at Rome Otho II., son and successor of Otho I., and died at Avignon in 999.

JOHN XIV., bishop of Pavia and chancellor to Otho II., succeeded Benedict VII. in the see of Rome in 998. Boniface VII., an intruder, entered Rome soon after, and put John to death; he was said to have been killed in prison after only nine months.

JOHN XV. (styled XVI. by some who place before him John Who, who is said to have lived only a few days after his election) was elected in 995. The disturbances of the patrician and canon Crescentius began in his pontificate. John however remained at Rome, and kept on good terms with Crescentius. He died in 996.

JOHN XVI., a Calabrian and bishop of Piacenza, was appointed pope in 996, and was crowned at Rome. In 1001. Otho III. of Germany, with the support of John, put to death Crescentius and his partisans. [GREGORY V.] John however is generally numbered in the series of the Popes.

JOHN XVII., son of Count Gregory of Tuscany, succeeded his brother Benedict VIII. in the year 1024. He crowned the Emperor Conrad, and died in 1034.

JOHN XVIII., a native of Lisbon, succeeded Adrian V. in 1077, and died about three months after.

JOHN XX., son of Count Gregory of Tuscany, succeeded his brother Benedict VIII. in the year 1024. He crowned the Emperor Conrad, and died in 1034.

JOHN XXI., a native of Lisbon, succeeded Adrian V. in 1077, and died about three months after.

JOHN XXII., James of Chabres in France, succeeded Clement V. in 1316, and, like him, took up his residence at Avignon. He was a man of considerable abilities, but he has been taxed with avarice and worldliness. The crown of Germany was disputed between Louis of Bavaria and King John, and assuming the right of deciding, excommunicated Louis. But this measure produced little effect in Germany; the diet of Frankfurt declared that the imperial authority depended upon the Imperial council, its leading officers, the nobility, and the city. However, the papal legate, who was at that time in a dreadful state of confusion. The pope preached a crusade against Visconti, Cane della Scala, and the Este, as heretics. Robert, with the assistance of the pope, aspired to the dominion of all Italy, and the pope sent a legate, who, at the head of an army, assisted Robert P. C., No. 804.
JOH 130
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and completed in 1635, from a design furnished by Inigo Jones.

Among the greater benefactors to this College, besides

the others mentioned, were Bishop Anne May- thew, and Peter Mews, afterwards bishop of Winchester, who were also presidents; Sir William Dawes, afterwards archbishop of York; Campan, the celebrated Jesuit; Sir James Whitelocke; Shirley, the dramatist; Sir Bulstrode Whitelocke; Henry Marsham, the chronologist; Dr. Ed- ward Bernard; Sherrard and Dillenius, the botanists; and Dr. Tucker, dean of Gloucester.

From the founder's endowment, and by means of other benefactions, this College is possessed of the following livings:—the rectories of Aston-le-Wall, Crock, and East Farndon, in Northamptonshire; Baynton in Yorkshire; Bardwell in Suffolk; Barrefston in Kent; Belbroughton in Worcestershire; Cheam in Surrey; Codford St. Mary in Wilts; and Tackley in Oxfordshire; Kingsthorpe in Bagpuze in Berks; Sutton in Bedfordshire; Leckford and South Warnborough in Hampshire; Winterbourne in Gloucestershire; and Cranham in Essex; the vicarages of Chalfont St. Peter in Buckinghamshire; Charbury and King's Sutton in Northamptonshire; St. Gilpin's in the suburb of Oxford; Fyfield and St. Lawrence Reading in Berkshire; St. Sepulchre's, London; Linton in Herefordshire; and Stoughton Magna in Huntingdonshire; and the curacies of Pemhay in Gloucestershire, and Summer-town Chapel in the suburbs of Oxford.

The present number of members of this College, depend- ing and independent, is 226, exclusive of the choir.

(Guthl's Colleges and Halls of Oxford: Chalmers's Higher Education, Vol. I. for 1883.)

JOHN'S COLLEGE, ST. CAMBRIDGE, was pro- jected and begun by Margaret countess of Richmond, a short time before her death, which happened in 1599. It was completed by her executors, under the authority of a papal bull and the royal mandates of her son and grandson King Henry VII. and King Henry VIII.; which gave them the power of suppressing a decayed hospital dedicated to St. John, at that time existing on the same site. The Col- leges, then consisting only of the present first court, was four years building, and was re-officially erected between a four and five thousand pounds. The statutes of the College were given by Henry VIII.; but those having become conf- used and ambiguous, owing to various changes, erasures, and dispersions, Queen Elizabeth gave the College a new set of statutes.

The original endowment was for fifty fellows; but part of the foundation-estates having been seized by King Henry VIII., the funds were found to be sufficient for thirty-two only. These fellowships are (by letters patent from Geo. IV. on the petition of the college, and in pursuance of a power to that effect) to be reserved to the crown by the statutes of Henry and Elizabeth) now open to natives of Eng- land and Wales, without any restriction or appropriation whatsoever, one only excepted, which is in the appointment of the bishop of Ely; but the bishop is required, agreeable to an arrangement between James Stanley bishop of Ely, and the executors of the countess of Richmond, to elect ac- cording to the wishes in every respect.

There are also twenty-one fellowships founded by dif- ferent benefactors, which have all the privileges of the former, and give an equal claim to the college patronage.

Besides these there are numerous scholarships, exhibi- tions, and other benefits belonging to this college: the former amount to no fewer than 114.

The present buildings consist of the first court, a second court of large dimensions, and a third, which contains the library. A handsome new court has recently been built by Rickman on the site of the old college, and is con- nected with the old buildings by a bridge.

This being a divinity college, all the fellows are obliged to take priest's orders within six years from the degree of M.A., except four, who are allowed by the master and seniors to remain laymen; two for the practice of physic, and two for law. The rest must proceed to the degree of B.D. at the regular time. The electors to fellowships are the two senior fellows of the college, with such patronage as the king, or the bishop of Ely. The number of persons on the boards of this college, March 12th, 1838, was 1096. The schools of Poekington and Sedbury in Yorkshire, Shrews- bury in Salop, Rivington in Lancashire, Stamford in Lin- colnshire, and a number in other counties, are relieving the vicarage of Horendale Magna, and the vicarages of Horned Parva and Lilly, in Herts; of Freshwater in Hants; the vicarages of Higham and Orpingle, and the rectories of Murston and Staplehurst, in Kent; the vicarage of Barrow on Soar, and the rectory of Mortton cum Holt, in Leicesters- hire; the vicarage of Minting, in Lincolnshire; the rectories of Thurston cum Smoring, Holt, Ditchingham, Formet, Sterton, South, and Aldburgh, and the vicarage of Houghton, in Suffolk; the vicarage of Bainton, in Northamptonshire; the vicarage of North Stoke, and the rector of Souldern, in Oxfordshire; the rectories of St. Florence, in Pembroke; of Barrow, Cockfield, and Leyham, in Suffolk; of Wootton Rivers, in Berkshire; of Pocklington, in Yorks; of Broom and Holme in Spalding; and the vicarage of Mortton cum Grafton, in Yorkshire. (Lysons's Magna Britan. 'Cambr.' and the Camb. Univ. Calendar for 1838.)

JOHN'S ST. (NEWFOUNDLAND.)

vicar of

JOHN'S, St. RIVER. (MAINE.)

JOHNSON, Samuel, the son of Michael Johnson, a bookseller at Lichfield, and Sarah, his wife, was born at Lichfield, in Staffordshire, the 13th of March, 1709. He was a sickly child, and was afflicted with the king's evil, which disfigured his face and impaired his eyesight, and he was taken to Queen Anne to be touched. His education was commenced at Lichfield, whence he was removed to a school at Stonorbridge; and in 1724, two years after he had left Stonorbridge, he was placed at Pembrooke College, Oxford. Young Johnson had early shown a vigorous understanding and an eagerness for knowledge; though he had poverty to contend with and a natural indolence, and was also subject to periodical feverish fits, yet he was so tenacious of all the information at the university. Necessity compelled him to abandon the hope of taking a degree; his debts, though small, were increasing; remittances from Lichfield could no longer be supplied; and he quitted college and returned to his father's house. In the year 1725, his father died in such pecuniary distress, that Johnson was soon afterwards glad to become usher of a school at Market Bosworth, in Leicestershire, to which, it appears from his diary, that he went on foot: 'Julii 16,' he wrote, 'Bosvortiam pedes peti.' But finding the drudgery of this employment intolerable, he sought other means of obtaining his bread, and procured temporary employment in translating for a bookseller in Birmingham. During his residence in this town he became intimate with the family of a mercurial named Porter, whose widow he subsequently married (1736). Mrs. Porter was more than twenty years older than himself, but he was fondly attached to her, and she added to other powers of increasing his happiness the power of frugality. With this immense stock he entered the school, but his advertisements produced few scholars, the scheme failed, and he left Staffordshire with his pupi. Garrick to seek his fortune in the metropolis. His prospects have been very gloomy; he had nothing but literature to trust to for subsistence, and he was reduced to the condition of literary men was most miserable and degrading.

In the reigns of Williams, of Anne, and George I, successful writers were rewarded by private munificence and public favor. But in the reign of George II, when such patronage had quite disappeared, the year in which Johnson left his home formed part of an interval which elapsed before a new source of remuneration arose—before the number of readers became large. Of readers there were still but few; the prices therefore that booksellers could afford to pay to authors were necessarily
small, and an author, whatever were his talents or his industry, had great difficulty in keeping a shilling in his purse. The poverty and neglected condition of his friend and brother author Savage were the causes of Johnson's being in his 'Lives,' an imitation of the third volume of Juvenal, for which Mr. Dodsley gave him ten guineas, and in which he obtained a certain degree of reputation. We are told that when Pope read it he said, 'The author, whoever he is, will not be long concealed.' No great advantage was gained by it. Again and again he was a schoolmaster, again his scheme miscarried, and he returned to his drudgery in the service of Cave the bookkeeper, who was his only patron. His pen was continually at work, and his pamphlets, prefaces, epitaphs, essays, and articles appeared until many years, in some cases written by themselves or in his periodical the 'Gentleman's Magazine.' For many years his bread continued to be earned by literary slavery; by slow degrees only did his fortunes, and the trust set in him by his publishers increase. In 1740, and for more than two years afterwards, he wrote the parliamentary speeches in the 'Gentleman's Magazine.' In 1744 he published his life of Savage; in the following year some observations on Shakespeare, somewhat hasty to edit; and in 1746 he commenced his 'English Dictionary,' which he engaged complete in three years for 153L 5s., a small sum if we consider that the author agreed to bear the heavy expenses necessary for preparing a work of such magnitude and importance. 1749 was the year of the tenth satire of Juvenal; and in the following year was printed the first paper of the 'Rambler.' These are some of his most remarkable publications, for a complete list of his works, and his life, see his son's memoirs, which, we believe, has never been published. It must refer to Boswell's 'Life.' For 'The Vanity of Human Wishes' 15 guineas only were received from Mr. Ridley. We mention this because the frame and condition of Johnson's mind and temper, his views of things and men, were influenced by the dictionary and his writings. He was now engaged in a steady course of occupation sufficient to employ his time for several years; so assiduous were his labours, that at his residence in Soho Square he had an upper room fitted up like a writing-lish, in which several copies of the dictionary were written with continual employment. The effort of his life were the utmost it could bear; and when it was tried by grief at the death of his wife (1728), he relined the 'Rambler.' Bad as his circumstances were, they were somewhat easier than they had been; the number of his acquaintance had increased; the Dictionary, which occupied eight instead of the promised three years, was nearly complete; and he found leisure (in 1748) to write as much as he had done in his life, whilst writing its libraries. This was his first emancipation from necessary labour. He soon returned to London to use the number of essays and reviews, which flowed usually from his pen. Thence, he resided, an offer of a pension was made to him; but, as he was a firm believer in revelation, and a somewhat rigid friend, he could not overcome its scruples respecting the use of his pen in the duties that would have been required of him, and the offer was rejected. He could therefore write for his bread; and it was not until his fifty-third year, and had for thirty years been with his pen, that any certain source of income was added to him. In May, 1762, George III., through his Lord Lichfield, offered Johnson a peculiar individual pension of 300l. a year; the two days of his penury were at an end. Happy, state of independence, he enjoyed the society of a club, of which Burke, Goldsmith, and Sir Joshua Reynolds were also members. He was introduced in the world by his dramatic performances, as 'Anecdotes of the 1763) as full and minute account of him as has been written of any individual. From this time we made as familiar as it is in the power of writing to make the character, the habits, and the appearance of a man, the subject of reflection; Everything about him says (the Edinburgh Review, vol. liii., p. 20), 'his coat, his wig, his figure, his scrotulus, his St. Vitus's dance, his rolling walk, lacking eye, the outward signs which his pen was his weapon; his inextinguishable appetite for wine and veal-pie with plums, his inextinguishable appetite for tea, his trick of touching the posts as he walked, his mysterious practice of treasuring up scraps of orange-peel, his morning slumber, his midnight disputations, his contortions, his murrurations, his grumblings, his buffings; his vigorous, acute, and ready eloquence; his sarcastic wit, his quickness, his fineness of language, his peculiar style of writing, his inextinguishable appetite for wine and veal-pie with plums, his inextinguishable appetite for tea, his trick of touching the posts as he walked,
from familiar objects. His wit may be described as logical, and chiefly consisted in dexterously convicting his opponent of absurdity. Conscious of his power, he was fond of dispute, and used to argue for victory. Scarcely any of his contemporaries except Burke at times made a match for him in the kind of discussions. His written style was eminently periodical; and in order to construct every sentence into a balanced period he frequently introduced superfluous and high-sounding expressions; hence his general style was stilted, bombastic, and diffuse. He was also fond of words of Latin derivation, to the exclusion of more familiar words of Saxon origin. A good burlesque of his style may be seen in the "Rejected Addresses."

Johnson’s opinions were regarded by many of his contemporaries with a sort of superstitious reverence, and even his style was considered worthy of imitation. In the present century perhaps no man’s credit has been so grossly and unnecessarily abused as his Dictionary excepted. His "English Dictionary" was a work of great labour, and the quotations are chosen with so much ingenuity, that, though necessarily mere fragments, they are amusing to read for the historical light which he has thrown on Dr. Johnson’s Dictionary from beginning to end. It is however in some respects a very defective work. Johnson had scarcely any knowledge of the Anglo-Saxon, and no knowledge of any of the cognate Teutonic dialects; accordingly the etymological part is not of much value; the etymologies being blindly copied chiefly from Skinner and Junius. His definitions are constructed without sufficient consideration, and without any systematic plan. He also frequently errs in his glosses or significations. For example, his definition of feoffment was published in 1756; the preface is one of his ablest productions, particularly that part which relates to the unities and dramatic illusion. He had no knowledge of this subject, and was capricious in his critical feeling for commenting on Shakespeare; his notes are not numerous, and though marked with his strong sense are only occasionally valuable. In 1757 he published the account of his journey in the Hebrides, an entertaining and even an instructive work, in which he discusses the most remote subjects familiar to every inhabitant of the country, but strange to a townsmen like Johnson. His "Lives of the Poets," published in 1781, are a useful and interesting contribution to English biography and criticism, and are too well known to require specific notice. The criticisms in this work are sometimes biased by political, religious, and even personal antipathies, as may be seen in his unfavourable judgment of Milton’s poetry, dictated by his dislike for his heretical efforts and disloyalty to the government, and his censures of Gray, which evidently proceeded from his jealousy of a successful contemporary. His judgments of the general character of a poet are however more frequently correct. His criticisms on particular passages and expressions. His verbal criticisms on poetry are for the most part the mere cavilings of a prosaic grammarian. A complete list of Johnson’s works is prefixed to Boswell’s "Life," but from what has been stated, it sufficiently appears that his inanities and non-essential works were cut out, and connected, and took the form of Essays, Lives, Critical Notices, Prefaces, &c. He had no comprehensive or profound acquaintance with any department of human knowledge, and never attempted any systematic investigation of any considerable branch of mental science, whether ethical, political, or mathematical. Even as a grammarian, his acquirements were shallow and limited, of physical and mathematical science he was quite ignorant. It may however be remarked that he adopted the name of utilitarian, which is now commonly known by the name of utilitarianism, so may be seen from his review of Somae Jenyns’s "Inquiry into the Origin of Evil," his ablest speculative production. Johnson here says of this theory, that it affords "a criterion of action on account of virtue and vice, for which no one who is not absolutely indifferent to all good and evil has failed, by all who are willing to know why they act or why they forbear, to give any reason of their conduct to themselves or others." From his habit of writing for the booksellers, he had acquired a power of writing on any subjects, and with scarcely any preparatory knowledge; witness his papers on the construction of Blackfriars Bridge, and his argument, dictated to Boswell, on a question of Scotch law. In English literature his reading was extensive, particularly of the productions of the political writers of the seventeenth and eighteenth centuries; but he seems to have known little about the writers of the age of Elizabeth: his "Lives of the Poets" begin with Cowley. He had not studied attentively the works of any of the chief English philosophers, as Bacon, Hobbes, Locke; his theological learning was considerable; but he was well versed in the political history or laws of his country. He had a fair acquaintance with the ordinary Latin classics; of Greek he knew but little. He could read French and Italian; but he seems to have been nearly ignorant of the modern literature of foreign countries.

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sions of that act, dispose of all real and personal estate to which he shall have a legal or equitable title at the time of his death, and which, if not disposed of by will, would go to his heir, or the heir of his ancestor, or to his personal representatives. This act gives power of disposal over the undivided interest of a joint tenant.

As to the written instrument and words by which a joint tenancy may be created, and the various rights and remedies which belong to a joint tenant, it is not necessary to dwell at any length here. The decisions of the courts have been given, and the special treatises on law. As an example of words which would create a joint tenancy, we may take the case of a bequest to two or more persons and their heirs, which would vest certain lands and demand her dower, so that the survivors would always succeed, and the last survivor would take the whole in fee, unless any one of the joint tenants had in his lifetime conveyed his share. And generally, when there is a gift of real or personal estate to several, this act gives power of disposal over such to such jointure, she is perpetually bound, even though the estate in jointure created during the marriage be made subject to a condition, and is in that respect less beneficial than dower.

A woman, though under age at the time of her marriage, is bound by an antenuptial jointure, inasmuch as the bar of dower arising out of the limitation of a jointure is not a matter of contract (by which minors are not bound), but proceeds upon the ground of the substitution of a new provision made by the husband, or on his behalf, under the authority of an act of parliament. It was formerly considered that the estate must be directly limited to the wife herself, and not conveyed to others in trust for her; but it is now settled that the trust estate is a good equitable jointure in bar of dower.

Where an estate tail is limited to a woman for her jointure, she is restricted from alienation or discontinuance by 11 Henry VII, c. 26, and 32 Henry VIII, c. 36; on the contrary, if lawfully evident to her, she may assign them.

In consequence of the practical inconveniences attending a limitation of land by way of jointure, it has become usual to create a rent-charge (i.e. an annuity charged upon land with a power of distress) for the life of the wife, with the husband's right of entering upon the land charged and retaining the possession until the annuity is paid, and further protected by a demise of the land to a trustee for a term of years. Such annuity ought in strictness to be charged upon the land which would otherwise be liable to dower, or upon some part of it.

This arrangement is equally beneficial to the widow and to the heir or devisee of the husband. A more certain income is provided, and dower or descent may enter into the immediate possession and take upon himself the management of the whole estate. This substituted provision by way of annuity is frequently called the wife's jointure. (Co-Litt. and Hargrave's Notes; Cruise's Dig.; Bacon's Adv.)

JOINVILLE, JEAN, SIRE or LORD DE, born of a noble family of Champagne, was brought up in the court of Thibaut, king of Navarre and count of Champagne, then one of the most polished courts in Europe. Joinville followed Louis IX, in his first crusade in 1248 with a body of several hundred armed men, which he raised among his tenants; and he was present at the taking of Damiette, and at the disastrous campaign of Messaoura, in which Louis and his army, with all but about 10,000 men, were taken prisoners. Joinville narrowly escaped being killed by the Egyptians; but the ransom being paid, he followed the king to Acre, and was present at the war which was carried on in Palestine, until he returned to France with Louis in 1254. Being a great favourite with the king, and almost constantly near his person during the six years of that crusade, his narrative of that period, written in a simple unpretending style, is extremely interesting. It is entitled "Histoire du Roi Louis IX. du nom de France, par Joinville," and has been often republished. One of the best editions is that by Ducange, fol., 1668, with useful notes and learned dissertations. It has been translated into English by T. Jones, 2 vols. 4to., 1607. The character of Joinville, a trustworthy specimen of a feudal lord of the time, is full of chivalry, valiant, gay, witty, generous, shrewd, and yet at times careless through vivacity of temper, somewhat worldly and proud of his rank, but withal good-natured and sociable, forms a happy contrast with the pious, austere-
nity, and simplicity of Louis, who however esteemed and loved Joinville for his sincerity and abilities, as much as for the grace of his style, and the expression of heart, of which he gives numerous and affecting proofs in his narrative. Joinville, after his return to his native domain, did not forsake the king, but frequently reported to him, and exhorted him to enjoy Louis's confidence. When Louis in 1261, set out on the way to the second expedition, in which he died at Tunis, he invited Joinville to join him, but he excused himself. Joinville kept away from the corrupt court of Philip le Bel, but afterwards he is said to have served the army of Louis X. colluding at Arras against the Flemish. He died not long after; but the precise epoch of his death is not known. Joinville and his predecessor Villehardouin are among the oldest of the French chroniclers who wrote in the vernacular tongue.

JOLIBA. [Quor.]

JOMELLI, NICOLÒ, one of the few celebrated composers of the early part of the last century, whose works justify the eulogy pronounced on them, was born in 1714, at Avesa, according to Mattei—at Avellino, says Burney—both places being near Naples. He was initiated in music by the Canon Muzzillo, and afterwards studied at one of the Neapolitan conservatories, first under Feo; then as the pupil of a celebrated Neapolitan composer, he compounded the latter for having inspired him with a true feeling for the art. Subsequently however, when he turned his attention to sacred music, he derived considerable improvement in the more elaborate branches of composition by his intercourse with Scarlatti and Martini.

Jomelli produced his first opera at Naples, being then only twenty-three years of age, and so speedily acquired fame, that in 1740 he was summoned to Rome, where he composed two operas, and was warmly patronized by the Cardinal Duke of York. Next year he proceeded to Logagna, and brought out his "Exio." He then returned to the papal capital, and produced one of his finest works—"Didone." This led to his being invited to Venice, at that time almost the great seat for the display of the highest genius, where his "Meropé" for the Teatro Feste, and a "Laudate" for the church of Santo Marco, well sustained his reputation. The failure of his "Arminia," in the following year, at Rome, determined him to visit Germany, and at Vienna he formed an acquaintance with Metastasio, which ripened into a friendship of the closest kind, that death only terminated. To the enlightened conversation and judicious criticisms of the Imperial poet he always confessed his obligations, and to which he ascribed much of the success of his later productions. He set the "Achille in Sciro," and got up afresh the "Didone," of his illustrious friend, both of which were received by the Germans with enthusiasm.

Metastasio, speaking of Jomelli, in several letters, says, "He had the ambition, passion, and spirit of a gaging countenance, most pleasing manners, and excellent morals. . . . He is the best composer for words of whom I have any knowledge. . . . If ever you should see him, you will be struck with him; he is certainly the most amiable gourmand that ever existed."

At Vienna Jomelli remained two years, where he devoted no inconsiderable portion of his time to the beautiful and accomplished empress Maria Theresa, to whom he gave instructions in music. He was afterwards recalled to Rome, and there produced several operas, also his famous oratorio "La Passioni." The duke of Würtemberg now prevailed on him to visit Stuttgart, in which city he resided nearly twenty years, and composed an incredible number of Italian operas, most of which are lost. He produced his "Missa pro Defunctis," or "Requiem," there produced, will always be known and remain as a monument of his genius. When the duke of Würtemberg was obliged to reduce his establishment, Jomelli was invited to Naples, where the ill success of two new operas operated so powerfully on his sensitive mind, that an attack of paralysis was the consequence. From this however he sufficiently recovered to compose a Cantata and a Misericante, the latter being made in consideration of the finest of his works. He died at Naples, in 1774.

Jomelli has been not unaptly called the "Glück of Italy." He possessed the deep feeling and vigour that characterized the great composer, and is nearly as rich in accompaniments. Indeed in his admirers he is universally affected, "Berenice, ove sei?" in the serious opera of "Lucio Vero," he not only left at an unmeasurable distance all former and contemporary composers, but gave birth to a style which was not without some degree of beauty, and which must transmit his name to posterity, so long as a taste for what very nearly approaches the sublime in music shall exist. We hardly need mention his "Chaconne," it is familiar to all; and though not to be ranked among the best of the nameless works, yet its great and long-continued popularity is an incontestable proof of its originality and other sterling merits.

JONAH (Jon.), was one of the twelve minor Hebrew prophets. He is mentioned in 2 Kings, xiv. 25, where we are told that Jeroboam II. restored the coast of Israel from the entering of Hamath unto the Sea of the plain, according to the word of the Lord God of Israel, which he had spoken through his servant Amittai, the prophet, which was of Gath-hepher, or Gittah-hepher (Joshua, xix. 13), a city near the eastern boundary of the tribe of Zebulon, which formed a part of the kingdom of Israel, and afterwards of Galilee. From this passage most critics have supposed that Jonah was the Prophet Jeroboam II. who reigned from 823 to 782 B.C. Bishop Lloyd places him near the close of Jehu's reign, or the beginning of that of Jehoahaz. The book of Jonah, with the prophecy of Nahum, forms a part of the prophecy of Nahum, forms a part of the prophet's last discourse of the land of Nineveh, and afterwards of Galilee. From this passage most critics have supposed that Jonah was the Prophet Jeroboam II. who reigned from 823 to 782 B.C. Bishop Lloyd places him near the close of Jehu's reign, or the beginning of that of Jehoahaz. The book of Jonah, with the prophecy of Nahum, forms a part of the prophecy of the Prophet Jeroboam II. who reigned from 823 to 782 B.C. Bishop Lloyd places him near the close of Jehu's reign, or the beginning of that of Jehoahaz. The book of Jonah, with the prophecy of Nahum, forms a part of the prophecy of the great and long-continued popularity is an incontestable proof of its originality and other sterling merits.

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JON orker. Of his youth and education very little is known,—perhaps quite as much as to be known,—except that by his talent for drawing he attracted the notice of William earl of Pembroke, by whom he was sent abroad, where he spent three or four years studying with his pencil, measuring and examining architecture. He returned to England in 1746, and the following year, at the solicitation of the Earl of Chesterfield, went to Paris to study painting, and was placed in the studio of Sir Godfrey Kneller.

At that period such task required much greater application and diligence than at present, when almost every ancient building has been shown in engravings, and when the student has been previously familiarised at school with the very elements of edifices adroitly Italian in their design. Jones, on the contrary, found himself in an entirely new world of art, for the ancient orders were then utterly unknown in England, nor were the Italian orders known, except as exhibited in almost every woman. He therefore applied merely as adscititious ornaments patched upon a degenerate Tudor style. So far the times were eminently propitious to Jones, nothing more being required than for him to transplant the full-grown Italian style, as he found it in the works of Palladio and that school, in order at once to obtain the celebrity of an originator. It was not however until many years after his first visit to Italy that he fully adopted the 'classical' taste.

About the year 1748 he was invited from Italy to Denmark, by Frederick, King of Denmark, IV., for whom he is said to have designed part of the buildings of the royal chateau of Frederiksborg, and also the palace of Roskirk. Fortunately this is doubtful, there being nothing in the architecture of either of these buildings of a nature by any chance to find nearest to the English Palladio. Yet, whether the patronage of the Danish monarch did much for Jones or not, in itself, it promoted his interest at the English court, Christian's sister being the queen of James I. Inigo returned to England about the middle of 1749, at the express wish of the Prince, that he emanципated himself from the mesquin style that had succeeded the downfall of Tudor architecture.

Without this second residence in Italy he might have designed a palace for Whitehall quite as extensive as the one he actually made, but it would have been very different in style. On his return he was appointed to the surveyorship-general of the royal buildings, and commenced his plans for that just mentioned. Soon after the only portion ever built of it, namely, the Banqueting House, was erected, a very different nature, that of ascertaining the origin and purpose of Stonechage; and notwithstanding that its rule amorphous blocks—from which sections were to be derived, even in regard to construction— such as we still see the works of Palladio and little to captivate the fancy of him who had displayed his invention in courtly pages, he appears to have prosecuted his ungrateful researches with application that deserved a far better object. His fancy however or enabled him to see much in those barbarous remains that had never existed; but as for the question, he left it, as he found it, a subject for speculation.

After the building at Whitehall, he was engaged upon the back-front of old Somerset House, and in adding buildings to the west front of old St. Paul's. Both of them have been greatly extolled, more especially the latter, but neither of them remains; we have however another very celebrated production of Inigo's in the church of St. Paul, Covent Garden, in regard to which many excel lent things might have been done. He was the first to frown upon the rattling of bells to the tune of 'Popina caffein in the metropolis; and when we say that the last-mentioned has been asserted by some to have been one of his best, no more flattering notion is conveyed of the taste of his admirers. In fact the Banqueting House is almost the only specimen that accounts for his reputation, as even that we suspect is now more praised as a matter of course, than really admired. The designs for the palace of White hall, together with many others by Jones, were published in a folio volume by Kent. To give a list of all the buildings attributed to him, or even of the principal ones in addition to those mentioned, would occupy a considerable space. He died in June, 1653, at the age of eighty.

JONES, SIR WILLIAM, was born in London, September the 28th, 1746. William Jones, his father, who was a mathematician of some eminence, was born in 1690, and died in 1744. William Jones was born in 1726. He was the author of "A New Compendium of Navigation," 8vo. London, 1709; "System of the Palmariurn Mathesees, or a New Introduction to the Mathematics," 8vo, London, 1766; "Analysis per Quantitatum Series, Fluxiones, se Differentias," &c., 4to, London, 1711; besides some papers in the "Philosophical Transactions." William Jones having died when his son was only three years of age, the care of the child's education devolved upon his mother, who appears to have been a sensible and intelligent woman. His progress in learning. At the age of seven he was sent to the grammar-school at Harrow, and though his classical studies were suspended for a twelvemonth when he was nine years old, in consequence of an accident which kept him from the school, he surpassed almost all his schoolfellows in learning; and so high an opinion had Dr. Thackeray, at that time head-master of the school, formed of the talents of his pupil, that he used to say that 'if Jones were left to himself and friends in Salisbury Plain, he would nevertheless find the road to fame in artillery.' Dr. Thackeray succeeded by Dr. SUMMER, who had an equally high opinion of the abilities of Jones; he has been known to declare that Jones knew more Greek than himself, and was a master of the language at the end of the last two years of his residence at Harrow Jones did not confine himself to the study of the classical writers; he learned the Arabic characters, and made some progress in Hebrew. He devoted a considerable part of his time to composition in Latin, Greek, and English; and some of his juvenile pieces have been printed in the fragment of a work which he began at school, and entitled 'Limon,' in imitation of a lost work of Cicero. During the vacations he studied the French and Italian languages.

JONES, Henry, was educated at University College, Oxford, where he continued to prosecute his studies with the greatest diligence. He especially directed his attention to the study of Arabic and Persian; and employed his vacations in reading the best authors in Italian, Spanish, and Portuguese. In 1765 he left Oxford, and went to reside in the family of Earl Spencer in order to superintend the education of Lord Althorpe. In 1770 he resigned this situation with the intention of going to the bar, but having formed a legal acquaintance with the king of Denmark, he was engaged by that monarch to superintend his palace. In five years that he resided in Earl Spencer's family he made great acquirements in Oriental literature, and obtained by his publications the reputation of being one of the first Oriental scholars of his age. In 1769 he accompanied the king of Denmark to Altona, and was present at the 'Life of Nadir Shah' from the Persian into French; this translation was published in 1770, with a treatise on Oriental poetry, also written in French, in which he has translated several of the poems of Hafiz into French verse. In the following year he published a grammar of the Persian language, which is the best grammar of that language that has yet appeared. It has been republished of late years with many additions and improvements by Professor Lee, of Cambridge. In his twenty-first year he began his 'Commentaries on Anatic Poetry' in imitation of Bishop Lowth's 'Prellections on the Sacred Poetry of the Hebrews.' This work, which was written in Latin, and was published in 1774 under the title of 'Poeseos Asiatiac Commenaria,' was entitled 'On Oriental poetry in general, and translations from the most celebrated Hebrew, Arabic, Persian, and Turkish poets. It was republished by Exc horn, at Leipzig, 1776. He also began, during his residence with Earl Spencer, a dictionary of the idioms of the 'Azarv-Avesta.' This reply was written in such good French that Dr. Sthall, a Swedish Orientalist, says, 'that he had known many Frenchmen so far mistaken in the writer as to ascribe it to some be-extrait de Paris.' For some account of this subject the reader is referred to the article ANQUET.
consisting chiefly of translations from the Asiatic languages.

In 1774 Mr. Jones was called to the bar. Feeling the importance of devoting his whole time to his legal studies, he left all his Oriental books and MSS. at Oxford, and diligently attended the courts of common law. During this time he wrote an essay on the law of bailments, which has since been reprinted, and characterized Jones's usual perspicacity and ease of expression; so far as concerns the arrangement and matter, we are not aware that it contains anything original, and it is sufficient to read it to be convinced that the legal mind required, to secure well and firmly form the fundamental principles which form the science of law. Jones's extravagant panegyric on Blackstone is sufficient to show in what manner he had studied law.

He next became a candidate to represent the University of Oxford in parliament, but finding that he had no hope of success in consequence of his opposition to the ministers of the day, and his condemnation of the American war, he withdrew from the contest. His opinions on political objects are given in his 'Enquiry into the Legal Mode of Suppressing Riots,' in his 'Speech to the Assembled Inhabitants of Middlesex,' &c., in his 'Plan of a National Defence,' and in his 'Principles of Government;' which are prefixed to the first volume of the 'Encyclopaedia.' After an interval of six years, when he had acquired great reputation in his profession, he again resumed his Oriental studies, and employed the leisure hours of the winter of 1780-1 in translating some ancient poems of the highest reputation, which are called 'Bhakti-tulaksana,' 'because they are hung up in the Temple of Mecca. In 1783 he was appointed, through the influence of Lord Ashburton, a judge in the supreme court of judicature at Fort William in Bengal; on which occasion he was knighted. A few weeks after he married Miss Shipleys, the eldest daughter of the bishop of St. Asaph.

Sir William Jones arrived at Calcutta at the close of the year; and from this time to that of his death, a period of eleven years, he devoted all his literary and scientific ability to the study of Oriental literature. Almost immediately after his arrival he induced those persons who had paid attention to Oriental literature to unite in forming a Society 'for inquiring into the history and antiquities, the arts, sciences, and literature of Asia.' To this the 'Asiatic Researches,' which were published by this Society, of which Sir William Jones was the first president, Oriental scholars in Europe are indebted for much of their knowledge of the literature and antiquities of the Hindus. Sir William Jones contributed the following treatises to the first four volumes of the 'Asiatic Researches': 'eleven Anniversary Discourses' on the different nations of Asia, &c.; 'A Dissertation on the Orthography and Words in Roman Letters,' 'On the Gods of Greece, Italy, and India;' 'On the Chronological Succession of the Hindu;' 'On the Antiquity of the Indian Zodiac;' 'On the Second Classical Book of the Hindu;' 'On the Musical Modes of the Hindus;' 'On the Mystical Poetry of the Hindoos;' 'On the Origin of the Hindu language,' containing the transliteration of Gigatovinda by Jayadharma; 'On the Indian Game of Chess,' 'The Design of a Treatise on the Plants of India;' and many other treatises of less importance.

In the study of Sanskrit principally engaged the attention of Sir William Jones during the first three or four years of his residence in Bengal. When he had attained sufficient proficiency in this language he proposed to the government to publish a copious digest of Hindu and Mohammedan law; having obtained the consent of the government, he set about translating it. This offer was willingly accepted, and Sir William Jones laboured for many years on the work. It was unfinished at the time of his death; but since has been commenced Mr. Colebrooke. The laws of Manu, on which the whole system of Hindu jurisprudence is founded, were translated by Sir William Jones, and published separately in 1794. Those who are interested in Hindu literature are also indebted to Sir William Jones for a translation of the Ramayana, a dramatic poem by Cilidasa, which appeared for the first time in the reign of Emperor Puli, King of the Tins, and also for a translation of the Hitopadêsa, which appeared to have been the original of the celebrated collection of Persian fables known under the name of Pulip or Bdpia. [BIDPÂI] But perhaps none of his labours will be more gratefully remembered by his countrymen than the completion of the Ramayana, which he never neglected his duties as a judge; and 'the indefatigable integrity,' remarks Lord Teignmouth, 'with which he discharged the solemn duty of this station, will long be remembered in Calcutta, both by Europeans and natives.'

Sir William Jones, on the 27th of April, 1794, after a few days' illness. A mere catalogue of the works of Sir William Jones would show the extent and variety of his knowledge. He had a wonderful facility for the acquisition of languages; and though Latin and Greek was extensive, yet not profound; his acquaintance with Arabic, Persian, and Sanskrit has seldom been equalled, and scarcely, if ever, surpassed by any European; he was familiar with Turkish and Hebrew; and it is said that he attempted to teach him to translate an ode of Confucius. He was also well acquainted with most of the modern languages of Europe—French, Italian, Spanish, Portuguese, and German; and had studied less critically numerous other languages. He knew the sciences and subjects of his profession sufficiently to be not only able, but had however made some progress in mathematics; was well acquainted with chemistry; and had studied botany during the latter years of his life with the greatest diligence. But though the attainments of Sir William Jones were so various and extensive, he does not appear to have possessed any originality. He neither discovered new truths nor placed old ones in a new light. He possessed neither the power of analyzing nor of combining and constructing. For language and language studies, he never collected materials for others. His writings on Oriental literature are interesting and instructive; but neither they nor any of his other works are distinguished by any originality of thought or power of expression; his style is weak, and hisjudgment rarefied. His historical works were, however, written with great care and accuracy, but were by some and others, though not so, as yet, have not, ever made; yet with every disposition to admire and honour him for what he has done, we cannot assign him a high independent place among the men of his age. He laboured unremittingly in his time, and was frequently seen, with his mind long, to be often in a state of anxiety and fever, and to pass many hours without sleep. He did not often go out a spectator at the pleasure of others, but was as frequently seen, by his foreigner as his at home, employed in his business. As soon as the court assembled, he was always seated in the antechamber; but before the reading hour came, he was seen, with his head covered, sitting in the library room, thinking about his own duties, and preparing for the next day. He was often the last to rise, and the last to retire to rest. He was not a man to say much; his thoughts were many; his conversation he held in reserve.
JON

for the eastern coasts of England and Scotland, in which his success and the terror he created were still greater than on the former occasion. Among other exploits, having encountered the Baltic fleet, he attacked its convoys, the Scarpens frigate and the Countess of Scarborough, off Flamborough Head, on the 5th of September, and, as Fynes Morgan sagt, succeeded, in capturing the first mentioned of these vessels. For this achievement he was, on his return to Paris, presented by Louis XVI. with a richly ornamented sword bearing a flattering inscription, was invested with the military order of St. George, and the title of the French admiral D'Estäing, after which he proceeded to Paris with the appointment of agent for prize-money. Some years afterwards he entered the Russian service with the rank of rear-admiral; but disputes in which he became involved in the business of writing a play about himself to the stage, where he proved but an indifferent actor and at first a indifferent retainer to the stage had the misfortune to kill a man in a duel, and was committed to prison, where the visits of a Catholic priest converted him to the Church of Rome.

Twelve years afterwards he returned to the Church of England.

It was in the year 1598 that his fame rose by the production of the comedy of 'Every Man in his Humour,' at the Globe Theatre, and from this time he adopted the practice of writing a number of several successful pieces of comedy, 'Every Man out of his Humour' was acted at the Globe; 'Cynthia's Revels,' which the author has called not a comedy, but a comical satire, was performed by the children of the hospital in 1617; and another comical satire, 'The Poetaster.' This last piece was written by a quarrel with Docter, who is satirized under the name of Crispinus. Decker retaliated by a play entitled 'Satiro-mastix,' in which Jonson appears under the title of Young Horse. He had acted in the part of the government, 'Tam-o'-Shanter,' in 1603, and his noble play of 'Volpone' appeared two years afterwards. About this time he was committed to prison with Chapman and Marston, the three poets having written the comedy of 'Eastward-hoe' (printed in Dodsley's collection), an attack upon the then government, which seems to have been the danger of losing their ears and noses, but were soon pardoned and released. It is said that Jonson's mother intended to poison herself, if the punishment had been increased. Being in one occupied with court masques, in the writing of which he had acquired great celebrity, Jonson did not produce another play (in the strict sense of the word) till 1609, when his 'Epicoene' was acted, which is regarded by Dryden as a perfect comedy. 'The Alchemist,' appeared in 1619, and though more deservedly reckoned one of the best of his works, was not so great a favourite with the public. Its ill success is ascribed by some to a party raised by himself to prison. Dryden has supposed that the Alchemist' was written in imitation of a piece called 'Albuc' which was given a great success in 1616, but the design of the two pieces are so very different that there scarcely seems a reason for supposing any imitation other than the mere circumstance that both plays satire pretentious ales. This curious fact is a curious fact in the time play that the Alchemist's tragedy of 'Sejanus' was produced in wise met with no success. In 1611 appeared the tragedy of 'Catailine,' in which the long speeches translated from Cicero and Sallust called forth animadversions, which were disregarded by the author, as he gloried in plagiarisms which served to exhibit his learning. After the production of 'Bartholomew Fair' in 1614, and 'The Devil is an Ass' in 1616, he published his works in folio, and soon after retired to live in Christ Church, Oxford, whither he had been invited by several members. In 1619 he became poet laureate of England, which was a great honour, and received a stipend of Spanish wine. The condemnation of 'The New Inn,' which he produced in 1625, nearly disgusted him with the stage, though he afterwards wrote 'The Magnetic Lady' and 'The Tale of a Tub,' which were well received. He appears to have suffered much from poverty in the latter part of his life. He died on the 6th August, 1637, and was buried three days afterwards in Westminster Abbey. His monument, inscribed 'O Rare Ben Jonson,' is familiar to everyone who visits the church. Jonson's plays are well adapted to the perusal of earnest students, who will find in them a mine of sterling though often rugged beauty; but those will be disappointed who look to his works for the amusements of a spending hour. He seems to have had a suitable education to enable a person to relish his imitations of the classic authors; and in the second, his plays do not so much represent human

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character generally, as mankind under the particular circumstances of Jonson's own time, and many local allusions are made which cannot be understood without some knowledge of the social and political customs of the time; but Mr. Gifford's notes in his edition of Jonson are a treasure of this kind of information. The practice of exhibiting the 'humorous,' that is, the peculiarities of character, obtained from Jonson the name of the 'humorous' poet, which name must be understood in a sense quite different from that in which it is used at present. The lovers of a more natural school of poetry are seldom admirers of Jonson, who finds his chief readers among those who like to see the propagation of a new order of genius, a new art. Of his completed dramatic works, Jonson has left two fragments, 'Mortimer's Fall,' which he intended to be a tragedy in the Greek style, and 'The Sad Shepherd,' a dramatic pastoral which is one of the gems of early English literature. He has also left a translation of Horace's 'Art of Poetry,' an 'English Grammar' of some merit, and a few poems, some of which are singularly beautiful. 'Every Man in his Humour' is the only piece that has kept possession of the stage. 'The Alchemist' has been abridged to a farce called 'The Tobacconist.'

JOPPA. [Syria.]

JORDAENS, JACOB, born at Antwerp in 1594, was a disciple of Adam van Oort, but was indebted to Rubens for the development of his own character. As a master of the art of painting, he was superior to all others of his time. He was prevented from visiting Rome by an early marriage with Van Oort's daughter; but he diligently copied the best pictures of the great Italian masters to which he could procure access. His pictures are distinguished by powerful, but sometimes tedious, colouring, and his use of a soft chiarosuro. His composition is rich, his touch free and spirited; but he is deficient in elegance and taste; he copied nature as he found it. He painted with great facility and rapidity, and being also extremely diligent and living to a great age (he died, aged eighty-four, in 1678), his works are very numerous: a great many of the churches in the Netherlands have altar-pieces by him, and his pictures are met with in most collections of any eminence.

JOS. [D.]

JORTIN, JOHN, D.D. (born 1698, died 1770), was of foreign extraction, his family having left France when Louis XIV. revoked the edict of Henry IV., commonly called the Edict of Nantes, for the protection of his Huguenot subjects. He was himself born in London. He had his grammar education at the Charter House, from whence he passed to Jesus College, Cambridge, of which he became in due time a Fellow.

While living at Cambridge he published a small volume of Latin verses which are greatly admired, and allowed to possess a high rank among modern Latin verses. His College presented him to a living in Cambridgehire, but he determined on leaving the country and residing in London, which became so familiar, or rather, in the better sense of the phrase, an admired and popular preacher. His sermons, many of which are printed, are distinguished for their excellent sense and the originality at once of thought and style. In 1751 he obtained the living of St. Dunstan in the East. His other church preferment was the living of Eastwell in Kent, presented to him by the earl of Winchelsea. This was for the greater part of his life all the preferment he enjoyed; but in 1762, when his friend Dr. Osbaldeston became bishop of London, Jortin was appointed his domestic chaplain, and a light presented with a prebend in the church of Saint Paul and the living of Kensington. To these was soon added the archdeaconry of London. He fixed his residence at Kensington, and was buried in the new churchyard of that place.

The critical writings of Dr. Jortin are not less admired by all who have a taste for curious literature. It is not merely on account of the learning which is displayed in them, and the use which is made of obscure authors, but the degree to which the expression is apt and the enterprise is satiric in the thoughts, which make them exceedingly entertaining. The first work of this class was published in 1731, and is entitled 'Miscellaneous Observations on Authors, ancient and modern.' In 1751 the first volume appeared of 'Pastimes of the English Court History;' and in 1758 he published his 'Life of Erasmus.'

JORULLO. [Mexico.]

JOSEPH I., of the house of Austria, emperor of Germany, succeeded his father Leopold I. in 1705. He carried on the war called 'of the Spanish succession,' which had begun under his father, against Louis XIV. The allied armies under Eugene and Marlborough were driven back from the Rhine in 1706, at the battle of Oudenaerde, and Malplaquet, the deliverance of Turin by Prince Eugene, the surrender of Naples to the Austrians, and the permanent footing obtained by the Archduke Charles in Spain, seemed to him to make the question, when Joseph died of the smallpox in April, 1711, leaving his brother Charles, afterwards Charles VI., the last male heir of the house of Hapsburg, to conclude the war. Joseph was a good prince; he was learned, and animated in the dispute, and was admired and the Emperor, as his father had been, by the wise and good princes.

JOSEPH II., eldest son of Maria Theresa and of Francis of Lorraine, was elected king of the Romans in 1744, and in the following year, on the death of his brother, succeeded to the Austrian dominions. Joseph soon displayed considerable ambition mixed with much restlessness: he was however kept in check by France and by Frederick of Prussia. After the latter died, in 1786, Joseph joined Catherine of Russia in a war against Austria and France. He was defeated atxor, but with success, taking Belgrade and other fortresses in 1799. But the threatening aspect of affairs in France and Brabant arrested the progress of the Austrian armies, and Joseph himself died in 1790. The character in which Joseph is represented as a man of letters and a medley of a liberal and a wise one, but in others rash and inconsiderate. He abolished all separate jurisdictions, and divided the Austrian monarchy into thirteen governments subdivided into circles, all under a uniform administration, civil and judicial. He ordered the expulsion of all the heroes of the Austrian system, and the transfer of the Spanish court in 1785 to a new capital in lieu of corves, taskworks, tithes, heriots, &c. He issued the edict of toleration, by which all Christians, of whatever denomination, were declared equally citizens, and equally possessed of the public rights and dignities of citizens. The population of 3000 inhabitants, whether Protestants or Greeks, they were allowed to build a church for themselves, provided they established at the same time a permanent fund for the support of the minister and relief of the poor. The Jews were allowed the exercise of all the trades and professions, with access to the public schools and universities. He took away from the clergy the censorship of the press, and gave it to a commission of literary men resident at Vienna. He opened colleges and universities, enlarged the public libraries, and encouraged the establishment of collected libraries. He encouraged manufactories, but, according to the old system, he placed exorbitant duties on foreign articles. He subjected the monastic fraternities to Austrian jurisdiction; and he suppressed many convents, but did not allow them to be dissolved. He treated the ecclesiastics and feelings of the older inmates, who were turned adrift into the world with only small pensions, and in some cases even without them. He forbade pilgrimages and processions, prohibited the pomp of funeral ceremonies, declared marriage to be a purely civil contract, forbade all papal bulls to be published throughout his dominions without the permission of the government, abolished the privileges of the university of Louvain, and established a new theological seminary in its place. These innovations in a country so strongly attached to its old institutions and religion as the Belgian provinces were, led to an insurrection, and ultimately to the separation of those fine territories from the Austrian monarchy. His scheme of establishing the German as the universal language through his empire, and his project of a more temperate successor Leopold had some difficulty in pacifying. In short, the reforms of Joseph partook both of the good and the evil of that spirit of innovation which has been characteristic of Europe ever since his time; for with all his liberality, he was not perfectly dexterous in the execution of his views, and his powers were far from sufficient to overcome every obstacle, without regard to the feelings, prejudices, or interests of individuals. He has been quaintly, but not inappropriately, styled the imperial avant-courier of the French revolution.

JOSEPH, King of Portugal. [PORTUGAL.]

JOSEPHUS, FLAVIU.S, the celebrated Jewish historian, was born at Jerusalem A.D. 37. His family was one of very distinguished rank; by his mother's side he was de-
ascended from the Armenian princes; and his father Mathias belonged to the chief seceder family of the first of the twenty-four courses. Josephus was brought up at Jerusalem with his brother Matthias; and, according to his own account, he made such progress in learning that he was frequently consulted at the age of fourteen, having brilliant points in the law. At the age of sixteen he resolved to become acquainted with the opinions of the three principal Jewish sects, namely, those of the Pharisees, Sadducees, and Essenes. He accordingly studied the doctrines of each; but he was especially pleased with the school of the Pharisees. In his twenty-sixth year he sailed to Rome with the view of obtaining the liberation of some priests of his acquaintance, who had been seized by Felix, procurator of Judea, and sent as captives to Rome. He had the misfortune to be shipwrecked in the Adriatic; but upon arriving at Puteoli, he became acquainted with an actor of the name of Alturius, through whose means he was introduced to Poppea, the wife of Nero, who procured the liberation of the priests, and bestowed many presents upon Josephus. On his return to Rome, Josephus formed part of his countrymen preparing for war against the Romans. Being strongly opposed to this measure, he joined himself to that party which was anxious for the preservation of peace. Like the other members of the Roman general Cestius, he opposed the massacre of the Jews at Alexandria and Antioch. All hope of peace appears to have been lost; and Josephus accordingly united himself to the war party. Being deputed, together with Joazar and Judas, to defend the province of Galilee, Josephus, entering the city of Antioch, was supposed to be the guide of the insurgents; but his plans were constantly thwarted, and his life frequently in danger from his personal and political enemies. On the approach of Vespasian's army in the following year, A.D. 67, Josephus retreated to Jotapata; and after defending the city for forty days against the whole Roman army, he was taken prisoner on the capture of the town. But instead of being put to death, as was the fate of all his companions, he was received by Vespasian with distinguished honour, in consequence of his pretending to the Romans that the Jews were aiming at a union of all nations, and that he would shortly succeed Nero in the government of the Roman empire. He was present with Titus at the siege of Jerusalem, and endeavoured to prevail upon his countrymen to submit to the Romans. After Vespasian succeeded to the government of Rome, he was placed under the imperial guard, and spent ten years in Rome, during which time he was treated with the most respect, and was permitted to live in Rome in high favour with Titus and Dominus. The time of his death is uncertain; he was certainly alive at the latter end of the first, and probably at the beginning of the second century.

The first work published by Josephus was the history of the 'Jewish War,' it was originally written in the Syro-Chaldaic language for the use of those Jews who lived beyond the Euphrates. He afterwards translated it into Greek for the benefit of the learned Romans. The 'Jewish War' consists of a prophetic account of the war, and the history of the Jews from the taking of Jerusalem by Antichus Epiphanes to the destruction of the city by Titus. Many years afterwards, A.D. 93, Josephus published in Greek his great work on the 'Antiquities of the Jews,' in which he gave a faithful account of Jewish history and opinions. This work commences, in the same manner as the book of Genesis, with the history of the creation of the world, and consists of a continuous account of Jewish history from the birth of Abraham to the commencement of the war with the Romans. The early part is taken from the books of the Old Testament, with many additions and explanations; some of which were probably given to Josephus by Rabbi Joshua ben Simeon, and are greater parts appear to have been only added by the historian, in order to give more importance to his nation, and a greater air of probability to the miraculous occurrences in Jewish history. The 'Antiquities of the Jews' consists of twenty books, and was dedicated to Epaphroditus, a philosopher at Rome.

Josephus also wrote 'Two Books against Apion,' in reply to those Greeks who questioned the truth of the early part of his work on the 'Antiquities of the Jews.' He likewise published an account of his own life in answer to Justus, who had written in Latin an account of the Jewish war, in which he attacked the character of Josephus.

The best editions of Josephus are by Hudson, Oxv., 1726, 2 vols. fol.; Havercamp, Amst., 2 vols. fol.; Oberthür, Leip., 3 vols. 8vo., 1782-5; and Richter, Leip., 6 vols. 12mo., 1807-12. The work has been translated into most of the modern languages of Europe: the best translations are—in French, by Gillet, Paris. 1756, 4 vols.; in Italian, by Angiolini, Verona, 1779, 4 vols.; and in English by Whiston. There are several German translations: one by J. B. Ott, Zürich, 1736; another by J. F. Cotta, Tübingen, 1736; and the 'Jewish War,' by J. B. Frise, Altona, 1804-5, 2 vols. 8vo.

JOSUAH (יוֹשֻׁעַ) in the LXX., Josephus, Acts, vii. 42, and Hebr. iv. 8, he is called 'Yosheya,' a book of the Old Testament, so called because it records the exploits of Joshua, the son of Nun, who succeeded Moses in the command of the Israelites. Joshua was born at Timnath-serah, in Mount Ephraim (Josh. i. 1-13, 18-27; xvii. 15), and in the course of seven years conquered the greater part of Palestine, and assigned a particular part of the country to each of the tribes. He died at the age of 110, and was buried at Timnah-serah, in Mount Ephraim (Josh. xx. 29, 30). We learn from Josephus that Joshua commanded the Israelites for twenty-five years (Antiq., v. 1, sec. 29).

The author of the Book of Joshua and the time in which it was written are equally uncertain. Many critics have supposed that it was written by Josue ben Nun. The entire book in its present form could not have been written by him, for many parts of the book refer to events which happened after the death of Joshua (Josh. iv. 19; xv. 13-19, compared with Judg. i. 10-15; Josh. xiv. 1-10; xlii. 10-18; xlvii. 10-12). Many critics suppose the book to have been written by Samuel or Eleazar, whose death is recorded in the last verse of the book. Lightfoot ascribes it to Phinehas, the son of Eleazar, and De Wette to the time of the Babylonian captivity. But at whatever time it may have been written, the author appears to have compiled the greater part, if not the whole, of the work from very ancient documents, some of which were probably drawn up by Joshua himself. The survey of the conquered country is expressly said to have been 'described in a book' (Josh. xvii. 9); and Joshua is also said to have written 'in the book of the law of God' the renewal of the covenant between God and the people of Israel (Josh. xxiv. 26). The Book of Judges, which has long since perished, forms part of the same history. In Josh. v. 1, the author appears to quote the exact words of a document written by a person who was present at the events recorded.

The Book of Joshua is a continuation of the Book of Deuteronomy, and gives an account of Jewish history from the death of Moses to that of Joshua. It may be divided into three parts, of which the first contains the history of the conquest of the southern and northern parts of Palestine (chaps. x.-xx.), and a recapitulation of the conquest (chaps. xi., xii.); the second part gives a description of the whole of Palestine (ch. xiii.), and an account of the land which was allotted to Caleb and each of the tribes (chaps. xiv.-xxii.); the third part contains an account of the dying address, death, and burial of Joshua (chaps. xxiii., xxiv.).
The canonical authority of this book has never been disputed. It is, indeed, the title of Memorias para la vida del Excmo. Sen. Don G. Jovellanos, a acknowledgement of the debt which the Church owes to him.

JOVIANUS, FLAVIUS CLAUDIUS, born A.D. 331, was the son of Veronianus, of an illustrious family of Mor-
ais, who had filled important offices under Constantius. He continued in the army's career in his unlucky expedition against the Persians, and when that emperor was killed, A.D. 363, the soldiers proclaimed him their savior. His first task was to save the army, which was surrounded by the Persians, and in great distress for provisions. After repelling repeated attacks of the enemy, he willingly listened to proposals for peace, which were that the Romans should give up the conquests of former emperors westward of the Tigris, and as far as the city of Nisibis, which was still in their hands, but was included in the territory to be surrendered up to Persia, and that moreover they should give no assistance to the king of Armenia, then at war with the Persians. These conditions, however offensive to Roman pride, Jovianus was obliged to submit to, as his soldiers were in the utmost destitution. It is a remarkable instance of the Roman notions of political honesty, that Eutropius re-
proaches Jovianus not so much with having given up the territory of the empire, as with having observed so hu-
mitating a treaty after he had come out of his dangerous position, instead of renewing the war, the Romans had constantly done on former occasions. Jovianus delivered Nisibis to the Persians, the inhabitants withdrawing to Amida, which became the chief Roman town in Mesopo-
tamia. On his arrival at Antioch, Jovianus, who was of the Christian faith, revoked the edicts of Julian against the Christians. He also supported the orthodox or Nicene creed against the Arians, and he showed his favour to the bishops who had formerly suffered from the Arians, and es-
pecially to Athanasius, who visited him at Antioch. Having died in 364, Jovianus was laid to rest all over the empire, after staying some months at Antioch, set off during the winter to Constantinople, and, on his way, paid funeral honours to Julian's remains at Tarasus. He continued his journey in very severe cold, of which several of his attendants died. At Ancya he assumed the consulship and left for Gaul, where, after, being at a place called Dadastana in Galatia, he was found dead in his bed, as some say being suffocated by the vapour of the charcoal burning in his room, according to others by the steam of the plaster with which it had been newly laid, whilst others again suspected him to have been poisoned or killed by some of his guards. He died on the 16th of February, A.D. 364, being 33 years of age, after a reign of only seven months. The army proclaimed Valen-
tinianus as his successor.
JUAN DEL RIO, [MEXICO.]

JUANA, son of Hiemael, king of Numidia, succeeded his father about the year 50 B.C. He was a warm supporter of the senatorial party, and Pompey, moved, it is said, by a cross thrust which his youth had given to ‘Cesar. He gained, n.d. 49, a great victory over Curio, Caesar’s lieutenant in Africa. After the battle of Pharsalia and the death of Pompey, he continued steady to his cause; and when Caesar invaded Africa, n.d. 46, he supported Scipio and Octavius with all his power, and in the first instance reduced the dictator to much difficulty. The battle of Thapsus turned the scale however in Caesar’s favour. Juba fled; and finding that his subjects refused to receive him, in an end 6th book to his life in despair. His connection with Cato has suggested the underplot of Addison’s tragedy attempts to throw off the yoke of the Syrian kings (1 Macc. iii. 1). He greatly distinguished himself in the war by his military talents, his personal courage, and his impecunious hostility to the Syrian princes. Immediately after his father’s death he defeated two Syrian armies; and in the following year conquered Lysias and Gorgias, who had been sent against him with much larger forces. He afterwards took possession of Jerusalem, purified the Temple from all unholy pollution, and restored the worship of the Jewish nation. He strengthened his power by subduing the Idumæans and Ammonites and other nations bordering upon Palestine. The unexpected success of Judas greatly exasperated Antiochus, who swore that he would destroy the whole Jewish nation, but he died before he could effect his designs against the conquest of the country. He was succeeded by Antiochus Epiphanes, who marched against Jerusalem, but was obliged to raise the siege and return to Upper Asia in consequence of a revolt of a powerful noble. Before he left Palestine he entered into an alliance with Judas. This treaty however was soon broken by the Syrian king; fresh armies were sent against Judas, which were all defeated by this intrepid warrior. Anxious to render Judas independent, and feeling the difficulty of continuing the war against the whole power of the Syrian empire, he sent ambassadors to Rome to solicit an alliance with the Roman people (1 Macc. i. 8; Justin, xxxii. 3). This was readily granted by the Romans; but before Judas could receive any assistance from his new allies, Palestine was again invaded by a Syrian army of 22,000 men under the command of Baccides. Judas had only 3000 men with him, and his number afterwards diminished to 800; but with these he ventured to attack the Syrians, and after an obstinate struggle, brought an at length defeated, and perished in the contest (n.c. 160).

(The First Book of the Maccabees; Josephus’s Jewish Antiquities; Fluideus’s Connexion; John’s Hebrew Commonweal.

JUDE, THE EPISTLE OF SAINT, a book of the New Testament, was probably written by the Apostle Jude, who was surnamed Lebæus (Lebæus) and Thaddæus (Thaddæus) (Matt. x. 3; Mark, iii. 18; John, xix. 25). He was also called the brother of James (1 Cor. xvi. 13), and the brother of Christ (Matt. xii. 55). This James was probably ‘James the Less;’ the son of Alpheus and Mary (Matt. x. 3; xxvii. 65; Mark, xvi. 40), who was also the brother of Christ. The meaning of the ‘brother of Christ’ has been much discussed under JAMES. It has however been maintained that this epistle could not have been written by the Apostle Jude, since he does not describe himself as an apostle, but, on the contrary, refers to the authority of the apostles as superior to his own (v. 17). (De Wette’s Lehrbuch, sec. 182.)

The object of this epistle is to guard believers against the false teachers who had crept into the church, and to exhort them to persevere in their Christian profession. There is a great contrast, in the first part of the epistle, between this and the second epistle of St. Peter. Hug, in his Introduction to the New Testament, argues, that since ‘the language of Jude is simple, unpremeditated, and expressive, without ornament; while that of Peter is artificial, and has the appearance of embellishment and amplification; the epistle of Jude was written first, and was used by St. Peter in the composition of his second epistle. The epistle of Jude appears to have been written shortly before the destruction of Jerusalem.

The canonicity of this epistle, and of this entire chapter, is debated by many, because the apocryphal books of Enoch and the Ascension of Moses are supposed to be quoted in it (v. 14, 9). It is not contained in the ‘Peshito,’ and is classed by Eusebius among the Antilegomena (Hist. Ecc., ii. 23; iii. 29). Origen also expresses doubt respecting it (Comment in Matta, iii. 814); but the greater number of the fathers refer to it as a work of divine authority.

(The Introductions of Michaels, Eichhorn, De Wette, Berthold, Hug, and Horne; and the Commentaries of Hishin (1799) and Hâle.)

JUDEX, JUDICIM. It is of some importance to form a correct notion of the terms judex and judicium in the Roman writers. The judicium was a certain officer, or an authority, and must be distinguished from the judicium publicum. The former had relation to actions, and may be generally described as Civil actions; the latter were of the nature of Criminal prosecutions.

Coin of Judea I.

British Museum. Actual size. After.

JUDEA. [Jews; Palestine.]

Judaism included, or rather, there is a great signification, not only the system of religion which is believed in by the Jews, but also all those laws, moral, civil, political, and ritual, which are contained in the five books of Moses. Some of the peculiar tenets of this religion were imparted to Abraham, the ancestor of the Jewish people, and did not receive its full development till after the departure of the Israelites from Egypt, and the arrival of Mount Sinai, where the Supreme Being imparted to Moses the whole system of the Jewish economy. After the destruction of Jerusalem by the Romans, and the dispersion of the Jews over various countries of the world, all those laws which related to government, and which could only be enforced in a country where the Jewish political power, necessarily became obsolete; but the term Judaism has consequently been restricted to those religious and moral laws which are contained in the Pentateuch, and which are recognised by the Jews as the present time as the rule of their faith and conduct. The peculiar characteristics of Judaism, with the history of its rise and progress, are given in the article Jews.

An interesting account of the ceremonial rites and religious and philosophical opinions of the modern Jews (that is of those who lived during or subsequently to the time of Christ) is given in Allen’s ‘Modern Judaism,’ London, 1816, 2nd ed. 1830.

JUDAS MACCABEUS succeeded his father Mattathias (s.c. 166) as the leader of the Jews in their patriotic
In the J udicium Privatum the party complaining (actor) came before the praetor or other magistrate who had jurisdiction (jurisdiction), and made his claim or complaint, to which the defendant (reus) might put in a plea (exceptio). The praetor then made an order by which he referred the matter to Judges or Recuperatores, or Arbitri, whose chief office was to ascertain the facts in dispute. The formula, or order, of the praetor, was of the nature of a provisional decree: it stated the matter at issue between the parties and the judgment that was to follow upon the determination of the facts. The plaintiff had to prove his case, or the defendant to prove his defence, to the satisfaction of the judges. Sometimes there was only one judge. The speech of Cicero 'Pro Publico Quinto' was made before a single judge, aided by assessors (consilium).

The patroni or orators appeared before the judges to support the causes of their clients. The cases were sworn in and examined orally. Judges were produced on each side and examined orally; and it is clear from the remarks of Cicero (Pro Caeina, c. 10), where he is commenting on the evidence in the case of Caeina, that he had cross-examined and put to confusion an impudent witness on the other side (see also the Oratio Pro Flacco, c. 10). It is clear also from the oration 'Pro Caeina,' that the inquiry before the judges was public. Written documents, such as letters and books of accounts, were produced before the judges by way of evidence. As was the case with Cicero, when he finished their speeches, the judges decided by a majority. The sentence was, if necessary, in some cases carried into effect by the lictors of the magistrate who appointed the judges. The form in which the judges pronounced their sentence was that of a judgment or decree.

The difference between the judicium and arbitration was this: in the judicium, the claim, demand, or damages, was a sum fixed; in the arbitration it was a sum uncertain; and this difference was attended with certain variations in the procedure. This is very clearly expressed by Cicero (Pro Q. Rosco, c. 4). The judge must necessarily to some extent have settled questions of law, inasmuch as the determination of the facts sometimes depends upon the state of the law. The judges were accordingly allowed to have assessoris (consilium) learned in the law (juris-consulti), but the juris-consulti merely advised the judges, who alone delivered the decision. In case of doubt the law, judges might consult the magistrate under whom they were acting; but as to the matters of fact, the judges were the sole judges, and could take no advice from the magistrate (Dig., v. 1, 79). Gellius (xiv. 2) gives an amusing account of the difficulty which he felt on the first day as a judge, and how he got rid of the business by declaring on oath, as the judex always might do, that he could not come to any decision. The difficulty which he experienced was exactly one of those which a person not practically acquainted with legal proceedings would experience.

We may presume that the judges were generally persons qualified by a sufficient education, though they were not necessarily lawyers; but it does not appear that they were most of them, as the author of the Digest assumes, magistrates who 'being only annual functionaries, it appears that there was no class of men among the Romans, like our judges, who were the living interpreters of law for a series of years in succession. The juris-consulti seem to have kept a regular correspondence with them; and it is to be observed that there were written, and these writings alone that the Digest is compiled. (Justi-

JUDICIARY'S LEGISLATION.)

A court is often mentioned by the Roman writers, the origin of which is not known; but it was thoroughly one appointed, would throw great light on the Roman judicial system, and indeed on the Roman policy generally. We allude to the J udicium Centumvira, which in the earlier times of the Republic was a court in which weighty matters of law were decided. This court, gradually declined, but was restored by Augustus. The author of the dialogue

'De Causis Corruptis Bialearum' speaks of it as most flourishing in his time; but he proves its former decay by observing that there was not a single speech then extant made by any great orator before this court, except one which he mentions. Yet both L. Crassus and Q. Scaevola had pleaded before the Centumviri. (Cic., De Orat., i. 39.) The fact, therefore, and existence of the body is not unknown, though some writers say that the number was 105, three being chosen from each tribe. (Festus, v. 'Centumviralis.') But there were not thirty-five tribes till A.C. 513, and therefore it might be inferred that the Centumviral body was of a much more recent date. However this does not necessarily follow from the words of Festus; and besides, such an explanation may be nothing more than his attempt to assign the origin of the court, without being able to trace it historically. The Centumviri were not magistrati, but a college of Judges, who had decided in the cases that matters which came before them were only actions in rea, or vindicationes, not actions in personam, or actions founded on contracts or debits; consequently the matters brought before them were actions affecting ownership, servitudes (easements), wills, and intestacies. (Cicero, De Orato, l. 38, 39.) The Querela Inofficiosi Testamenti seems to have come before this court only. So far as here stated seems to be pretty clearly made out. A valuable essay on the differences between this court and the ordinary Forum courts follows with the advantages and disadvantages of each, and solve with some degree of probability various difficulties that may suggest themselves to the student. (Hollweg, Uber die Kompetenz des Centumviralsgerichts, Zeitschrift f. Geschicht. Recht., v. 358.) A more recent writer (Tigges, St. J udicium Romanum) has given together from Hollweg's view of the court of the Centumviri, and perhaps on some points he has shown him to be wrong. The value of Tigges's essay however appears to be that he collects the numerous passages which he has collected from the Roman writers than in the deductions which he has made from them.

It is not our purpose to treat at length of the J udicium Publica. They were in the nature of criminal prosecutions, in which a single judge, chosen by the people or by the Senate, was the judge, or in which the verdict was followed by a legal punishment. Judges were employed here also, and were a kind of assessors to the magistrate, or the J udex Q uas i s, who presided. Both the accuser and the accused, as it seems, might challenge a certain number of the judges. Witnesses were examined before them: slaves by torture, freemen orally. The judges, at least in the more important matters, voted by ballot: each judge put into the urn a tablet of Acquittal, of Condemnation, or the tablet. N. L. (Graec., i. 160) says, 'it is not clear whether the verdict is by majority or at the behest of the judge.' The magistrate pronounced the verdict according to the tablets which made a majority. A lively picture of the intrigues and bribery which were not unusual on such occasions is given by Cicero in speaking of the affair of Clodius and the Bon Dea (Rp. ad Att., l. 13, 16). The deliberations of the judges may indeed be no more than the dress rehearsal of the actio privacy, and the verdict of the judges the true verdict; but the verdict of the judges in the meantime had become more or less fixed, and the magistrates were only the judges of the end of the case. In this sense the term was in the true sense a court, though not in the technical meaning of a court of justice. (Ueber Donatus, Schumann, etc.)

There is a distinction between judicium publica, judicium popularia, judicium extraordinaria, and judicium populi. The title 'De Officio Judicis' in the 'Institutis' (iv. 17) contains merely general directions for the conduct of the judges.

It was observed that this subject is not free from difficulty. What is above stated must be taken as correct in the main features. Further inquiry is still wanted on several matters connected with the functions of the judges. Enough has been said to enable the reader to trace the change of the Roman jurisdiction into the modern, and to show the resemblance of the old and the modern judicium. (Gaius, lib. iv.; Heinicetus, Saptgama, &c., by Haubold; Unterholzer, Uber die Redie Cicero fur den Schauspieler Roscius, Zeitschrift, &c., l. 248; and his remarks on the difference between the 'discretion' of the Digest and the actio in personam, with reference to the judicium Privatum; Pecht., De J udicis, t. iv. i.; 'De J udicis Publicis,' Dig., xlvii.; Institi. iv., tit. 185; [INTERDICT.] Dr. Pettingall's 'Inquiry into the Use and Practice of the Terms among the Greeks and Romans,' London, 1769, may be consulted as to the functions of the Roman 165 in the Judicium Publica. The author's conclusions seem to be correct, though his essay is an ill-arranged, and unmethodical production. The 'Attische Process,' by Moer and Schomann, and the essay of Pettingall, may be
The historical and geographical difficulties of this book are so great, and its narrative so improbable, that a great number of critics are disposed to consider it as a religious romance, probably written in the time of the Maccabees, to encourage the Jews in their struggles against the Syrian monarchs. Grotius considers it as an allégorie, written in the time of Antiochus Euphasines; and that by Judith is meant Judith; by Bethulia, the temple or house of God; and by the sword which went out from thence, the prayers of the saints; that Nahubahodosorus denotes the devil; and the kingdom of Assyria the devil's pride. &c. Montfaucon (La Ferette de l'Histoire de Judith), Huet (Dum. ec. Propa. iv. p. 360), and Prideaux (Connection, vol. i. pp. 65-74), maintain, on the contrary, that it is a true history. Prideaux considers Nahubahodosorus to be the same person as Saodzechiuns, the son of Esarhaddon, and grandson of Sennacherib; and Apiraxtha, who is represented in Judith as the king of Media, to be only another name for Deioces. But in opposition to this it should be remarked that there are many passages in the book which refer to a time subsequent to the Babylonian captivity, Josephus also, who seldom neglects an opportunity of extolling the valor of his countrymen, takes no notice of this story.

The book of Judith was originally written in Chaldee, from which it was translated into Latin by Jerome. It was also translated into Greek and Syriac. The English translation in the authorized version was made from the Greek, and differs in many respects from the translation of Jerome, which is still extant in the Latin vulgate.

There is a great similarity between the history of Judith and a tale which Quintus Curtius tells us respecting the death of Spitamenes (viii. 3).

(5) The Introductions of Eichorn, Jahn, De Wette, Berthold, and Horne.)

JUGGERNAUTH. [Vishnu.]

JUGLANDACEÆ are a natural order of apetalous Exogenous plants, consisting of trees or shrubs having eatable nuts and somewhat resinous leaves. The former are the walnuts and hickory nuts of the markets; the first produced by the genus Juglans, the latter by that called Carya. The leaves are alternate and pinnated; the flowers usually monocious; those which are male collected in catkins. The calyx of the latter consists of a few scales attached obliquely to a single bract, and surrounding a variable number of stamens; that of the females is superior. The ovary is one-celled, and has one solitary erect ovule, which changes into a 4-lobed seed, with crumpled cotyledons, enclosed in a two-valved nut, clothed with a fleshy epicarp. The common walnut (Juglans regia), a native of Persia, is well known for its excellent timber, from which muskett-stocks (and formerly cabinet-work) are manufactured, for its agreeable wholesome nuts, and the sweet drying oil which they furnish when pressed. Carya alba, the white Hiccoey, bears nuts like those of the walnut, only smaller, smoother, and with a thicker shell, and furnishes a valuable tough elastic white timber much em-
ployed in the construction of carriages and other vehicles.

Other species of Hickory are also eaten, especially the Pecan nut, the produce of Carya oliviformis, a small and delicate sort. Although the fruit of these plants is eaten, it contains a purgative principle, which renders some of the species cathartic, as is the case with Juglans cathartica and nigræ, two North American species; and even the common walnut partakes so much in this quality, when the fruit is young, that a laxative conserve well known in domestic medicine is prepared from it. Juglans nigra, the Black American Walnut, is a tree of remarkable size and beauty.

JUGULAR VEINS are the large trunks by which the greater part of the blood is returned to the heart after having circulated in the head, face, and neck. There are two on each side of the neck, and are united in front of the collar bones. The external jugular lies on each side just under the skin, and extends from near the angle of the jaw to the middle of the clavicle, behind which it opens into the subclavian vein. It receives the blood of the collateral veins from the jaws, temples, and front and sides of the neck, and of some of those from the face. The internal jugular, which is far larger than the external, lies deep in the neck, by the side of the carotid artery. It receives all the blood from the skull and the brain, from the eyes and ears, and from the scalp, face, tongue, palate, pharynx, &c. The internal jugular veins extend from the base of the skull just in front of the vertebral column, down the neck, to some depth behind the clavicles, where they unite with the subclavian veins. The blood is then conducted into the arm, and on to the upper part of the chest and neck to form the vein innominata, which by their union form the vena cava superior, which opens directly into the right auricle of the heart.

[The text continues with historical and medical information.]
Julian, having resolved on carrying on the war against the Persians, repaired to Antioch, where he resided for several months. His neglected attire, his uncombed beard, and the philosophical austerity of his habits, drew upon him the sarcasms of the Persian emperor, who, to revenge himself by writing a satire against them, called "Misopogon," and, what was worse, by giving them a repugnant governor. He set off on his expedition with a brilliant army, reckoned at 65,000 men, crossed the Euphrates, took several fortified towns of Mesopotamia, crossed the Tigris and took Ctesiphon, but here his progress ended. The close Roman legions were harassed on all sides by the light cavalry of the Persians, and reduced to a state of great distress. Julian, in order to avoid the impossibility of sustaining such a formidable front to the enemy, and Sapor, the Persian king, was inclined to come to terms, when in a skirmish between the advanced posts of both armies, Julian, who had run to head his soldiers, neglecting to put on his armor and sword, was taken from the field of battle and pierced his side. Being carried to his tent he expired the following night, 26th June, 363. He died with perfect calmness and composure, surrounded by his friends, conversing on philosophical subjects, and expressing his satisfaction at having been able to maintain the heat conduct of the empire. His remains were carried to Tarsus in Cilicia, according to his directions, and his successor Jovian erected a monument to his memory.

Julian had many eminent and some amiable qualities; his morals were pure and even austere; his faults were chiefly those of judgment, probably influenced by the impressions of early youth, an ardent and somewhat mystic imagina-

tion, and the flattery of those around him. His works consist of orations, satires, "The Cassars," and about eighty letters, some of which are very interesting. His letter to Themistius contains a treatise on the duties of sovereigns. The last and best edition of Julian's works is by Ezech. Spanheim, Leipzig, 1696, fol.; but it does not contain all the letters. A complete edition of the letters was published by L. H. Heyer, Mainz, 1828, 8vo. There is a French translation of Julian's works by L. Bietrier, and a Life of him by Tourret.
JULIUS I. succeeded Marcus in the see of Rome a.d. 315. A schism having been occasioned by the Eusebian party from his see of Alexandria, it was agreed by many of the Eastern bishops that the dispute should be settled in a council to be assembled at Rome. The council was convoked a.d. 340, and Athanasius appeared, but not his adversaries, who convened another synod at Antioch, which excluded Athanasius from his see. Julian remonstrated, but in vain. [ATHANASIUS, S.T.] The general council of Sardica was next convened, but a schism soon broke out in that assembly, and the parties excommunicated each other. This is the council which is said to have granted to the see of Rome the right of arbitration in cases concerning the deposition of bishops; but this is a point much controverted. Julius died in the year 352. Two letters of his to the Eusebians and the Church of Alexandria are extant. (Con-
stant., Epistole Roman. Pontif.) Others have been falsely attributed to him, as well as ten decreals, which are spurious.

JULIUS II., Cardinal della Rovere, nephew to Pope Sixtus IV., succeeded Pius III. in the year 1583. He had distinguished himself under preceding pontificates by his haughty temper and warlike disposition, which were fitter for the sword than the crosser. After his exaltation to the papal throne he began by driving Cesare Borgia out of his ill-gotten possessions in the Romagna; but there he found another power, the Venetians, who, during the preceding troubles, had taken possession of Ravenna, Rimini, and other places. The Venetians offered to pay tribute to the see of Rome for those territories, but Julius refused, and demanded their absolute restitution to the Church. After fruitless negotiations, Julius, in 1508, made a league with Louis XII., the Emperor Maximilian, and the duke of Ferrara, against Venice. This was called the League of Cambrai, and its object was the destruction of the republic of Venice and the partition of its territories. Venice, however, stood firm, although its armies were defeated and its territories were ravaged by both Germans and French with their usual cruelty. At last Julius himself, having recovered the town of Romagna, perceived the impolicy of uniting with ultramontane sovereigns against the oldest Italian state, and accordingly in February, 1510, he made peace with Venice. Wishing toundo the mischief which he had done, and to drive the foreigners, whom he styled 'barbarians,' out of Italy, he first sought to arm the Germans against the French, whom he dreaded most, but not succeeding, he called to his aid the Swiss. The pope himself took the field against the French in Lombardy, and attacked and took the town of La. Mirandola, entering it by a breach, in January, 1511. The next campaign was unavailing for Julius, and he lost Bologna. But in the following October his legates succeeded in forming a league, which he called 'Holy,' with Ferdinand of Spain, Henry of England, the Venetians, and the Swiss. The campaign was subsequent, in 1512, was marked by the battle of Ravenna and the death of Gaston de Foix, the French commander, followed by the total expulsion of the French from Lombardy. But this was effected by the Swiss, German, and Spanish troops, and Julius merely succeeded in driving one party of foreigners out of Italy by means of other foreigners, who meantime subdued the republic of Florence, and gave it to the Medici. In the midst of these events, Julius died of an inflammatory disease, on the 21st February, 1513. He was succeeded by Leo X. Julius was fond of the fine arts; he patronized Bramante, Michel Angelo, and Raphael, and he began the structure of St. Peter's Church.

JULIUS III., Cardinal Gioci, succeeded Paul III. in 1549. He re-opened the sittings of the Council of Trent, which had been suspended under his predecessor. He quarrelled with France and with Venice, and also with Ferdinand, king of the Romans and brother to Charles V., and died in March, 1555, leaving behind him a very indifferent character marked by incapacity and misconduct.

JULY, now the seventh, was originally the fifth month of the year, and was called by the Romans, in regard to its numerical station, Quintilis. Mark Antony altered the name to Julius, the gentile name of Gaius Caesar, the Doctor, who was born in it. So Festus, *Julum mensem appellatur quod eo mense dicitur Julius natus.'

In the old Latin or Alban calendar, Quintilis had a complement of 36 days. Romulus reduced them to 31; Numa to 30; but Julius Caesar restored the day of which Numa had deprived it, which it has ever since retained.

Our Anglo-Saxon ancestors called July Med-monath, 'mead month,' from the meads being then in their bloom; and after-litha monath, 'the latter mild month,' in contradiction to June, which they considered and named as 'the former mild month.'

On the 3rd of this month the Dog-days are supposed to begin.

(Pitisci Lexicon, i. 985; Brady's Claus Calendaria, i. 74; Bosworth's Anglo-Saxon Dict., v. 'Month.'

JUNNA. [HINDUSTAN.] JUNCAGINACEAE. A small natural order of Endogenous plants, so named from Juncus, the rush, which is considered its type. It is principally composed of obscure herbaceous plants, with brown or green glaucous hexa-
drous flowers, and would perhaps be with more propriety considered a section of Alcaea than a separate order. It forms one of the transitions from complete Endogens to the imperfect glaucous form of that class.

1. Juncus articulatus.
2. a flower spread open; 2, a capsule; 3, a seed cut through its longer side showing the embryo.

JUNCAGINACEAE are a small and unimportant order of Endogens, consisting of marsh plants with thin minute scaly flowers formed of 3 sepals, 3 petals, and as many stamens, which are opposite them. Their ovaries are 3 or 6 in number, contain each 1 or 2 ascending ovules, and, when ripe, form a dry fruit. The embryo has a lateral slit for the emission of the plumule, on which account they are
regarded as allied to Arcece. Triglochin is the commonest
genus of the order, and inhabits the fresh or salt marshes
of most parts of Europe.

JUNCUS ODO RATUS. In old works on Materia
Medica, as well as in many modern ones, we find a fragrant
plant referred to under this name, and which is usually
thought to be a kind of grass. Dr. Alston and some other
writers gave as its synonyms Funnum camorum, Palaet
de Meecha, and more especially Schonanthus, under which
indeed it should be described, as it is with good reason
thought to be Schenius (σανας) of Dioscorides. See
SCHENANTHUS, where also will be described the plant
which appears to be the Calamus aromaticus of the
authors, as the two are very closely allied.

J U N E, the sixth month of the year, named from
the Latin Junius. Ovid, in his Fasti (vi. 25), makes Juno
assert that the name was expressly given in honour of
herself.

' Ne temem ignoret volvaque erroris trahactis,
Juno a nostro nomine nomen habet.'

In another part of the Fasti (vi. 87) he gives the derivation
aprioriorius; as May had been derived from Muros.

' J unius est focumus; qui fuit ante annum.'

Those who derive the name from Junius Brutus, who be-
began his consulship in this month, forget that, according to
tradition, it had received the appellation long before.

In the old Latin or Alban calendar June was the fourth
month, and consisted of twenty-six days. Romulis is said
the month, twelve, deprived of it one day, which
was restored by Julius Caesar, since which time it has re-
maind undisturbed.

The Anglo-Saxons had several names for the month of
June. They called it ear-month, ' dry month; midsummer-
month, ' midsummer month; and eira-liha-month, ' the
rather mild month,' in contradistinction to July.

In this month is the summer solstice. Pitiscus tells us
that in the Roman times the month of June was considered
to be 'nuptis aaptosanus.'

(Pitiscus Lexicon, i. 956; Brady's Clavis Calendaria, i.
 Bosworth's Anglo-Saxon Dict. v. 'Month.)

J U N G E R M A N N I A/C E. A rather extensive natural
order of Cryptogamic plants, or Acroegna, resembling mosses
in appearance, but very distinct from them in many points
of structure. Their foliage is much more cellular, their
seed-velvet, or thee, split into 4 valves, has no operculum,
and instead of a central column has a number of tubes,
each furnished internally with a double elastic spiral thread,
and called an elater, to which the spores stick, and by the
aid of which they are supposed to be dispersed. The species
inhabit the trunks of trees, damp earth, or even the young
shoots and leaves of evergreen plants in the moist
soil, especially such as are temperate. Some have the stem and
leaf formed into a frond, or thallus, resembling that of a
lichen, but more commonly the species have leaves with
stipules at their base. A large number of genera has of
been formed Jungermannia, the opinions of botanists are much divided as to the value
of these new divisions; and they have not been generally
adopted. Hooker's Monograph of the British Jungerman-
tiae gives a valuable account of the species inhabiting these
islands. A more recent is not one of the whole European
genus is to be found in Nea v. Esenebeck's Naturgeschichte
der Europaischen Lebermose, 2 vols. 8vo. with plates.

J U N I PER US, a genus of hardy, evergreen, woody
plants, belonging to the natural order Conifera. Its distinc-
tive character consists in its female fruitification being
succulent, consolidated, and reduced in the number of its
parts below that is usual in the order to which the genus
belongs. Like other Conifera, its fruit is composed of scales
representing carpels, and when ripe, and its excrement
manifold a common axis. But they are not more than
six in number, generally three, and when ripe are fleshy and
consolidated into a body resembling a drupe. In the language of the Pharmacopoeia they are berries, in that of
botanists they are 'Geballi.'

About twenty species are known, the most important of which are the following:

1. J. Communis (Common Juniper). This is a common
bush, with long, narrow, sharp-pointed leaves, which are
glaucous and glabrous on the upper side, and with blackish foot. It grows
wild in all the northern parts of Europe, and, as is said, in
North America also and the north of India, but it is doubt-
fully whether the plants called Juniper by travellers in the
Himalaya Mountains belong to this species, for, from the
Harmonics the Juniper becomes a small tree. The fruit is
used in considerable quantities in the preparation of gin,
and in medicine as a powerful diuretic; a kind of beer
called genverette is also obtained in some parts of France
by fermenting it with barley. Oil of Juniper, obtained
from the Galbuli, is said to be the most powerful of all
diuretics in doses of four drops.

2. J. Sabina (the Savin). This species is readily known
from the last by its leaves being small, scale-like, and pressed
close to the stem, besides which, its fruit is a light bluish
green. It forms a compact gloomy-looking bush, in some cases
spreading near the ground, in others acquiring the
stature of a low tree. It is found wild in the middle of
Europe and the north of Asia, inhabiting the most barren
soil, and is frequently met with in this country in shrub-
berries. Like the common Juniper, it is a diuretic and
uterine stimulant, but is so powerful that its use is highly
dangerous, except in the hands of regular practitioners.
It is a well-known violent emmenagogue. Oil of Savin
is a local irritant, producing blisters when applied to the
skin; taken internally it is drastic and emetic.

3. J. Virginiana (the red cedar). Notwithstanding its
popular name this is not generally the plant that yields
the cedar wood used by cabinet-makers and pencil manu-
facturers, the Bermuda cedar being principally so employed;
its timber however is of great excellence and durability. It
is a native of North America, from Cedar Island in Lake
Champlain as far north as the southern side of the Gulf of Maine
and chiefly preferring the vicinity of the sea. In general it is
a large bush; but in favourable situations, and in such a
climate as that of Virginia and Carolina, it becomes a tree
40 feet high. The branches of this species are erect, the
leaves arranged in threes, small, scale-like, and but little
spreading; the fruit is deep blue, covered with a mealy
resinous powder. A great many fine plants occur in this
country; it is not however with us an object of any impor-
tance to the forests except for the sake of varnish.

4. J. Bermudiana (the Bermuda red cedar). Very little
known in Great Britain, in consequence of its not bearing
the climate without protection. It is a native of the Bar-
Gulf of Maine, and its

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mudus, where it becomes a large tree, with a soft fragrant wood, the value of which is well known from its use in cabinet-work and the manufacture of pencils. It has, when young (Persian, Cinnamomum cinnamomeum), an agreeable smell, growing in threes, but on the branches of old trees they become shorter, are placed in fours, and thus give the shoots a four-cornered appearance.

Of the other jumars, J. excelsa and J. Chinensis are hand-
some trees, the former reaching a height of 120 feet and the latter, 1665. It is also a handsome tree, with great beauty, because of its drooping habit and light grey branches, but it will not live long in England except in the warmest of the southern counties; and J. Phaecea is a handsome bush: the others are of little moment.

JUNO, the wife of Jupiter, is one of the two learned personages of this name, father and son. The father was a

Protestant minister in the Low Countries, best known by a translation of the Scriptures into the Latin tongue, in which he resided, from the days of Augustus. He is usually associated with the version of Junius and Tremellius. He became professor of theology at Leyden, where he died in 1602. His son, the younger Francis Junius, of whom we are principally to speak, was born at Heidelberg in 1599, accompanied his father to Leyden, but soon relinquished study and embraced the profession of arms. On the cessation of hostilities in those countries in 1609 he gave up arms, and betook himself to literature as a profession. He came over to England in 1610, and was soon entertained as his librarian by the

JUNOS. It is said to be a gift of the gods, a noble gift, a wife of the Greek goddess, as the nuns in the Roman church are and is regarded as a sacred gift, and is educated in all the knowledge, he accumulated vast stores of information.

The more particular direction of his studies was towards the northern languages, or rather the various dialects of that great language which under the name of the Gothic or Teutonic seems to have been spoken in the remotest ages by the people who inhabited both shores of the Baltic. We owe to him the publication of by far the most valuable relic of the literature of the people who spoke this language in its purity, a version of the gospels commonly called Ulphilas' Version, and the manuscript which contains it, 'The Silver Codex.' This was printed with many learned notes and other illustrations in 1653.

There is another work of his, published in his lifetime, on 'The Painting of the Antients,' which is a most useful book: but the work by which he is best known is a posthumous work, not printed until 1743, entitled 'Etymologicum Anglicanum,' in which we have the investigation of the origin of numerous words in the English language, relics of the language spoken by our Saxon ancestors, conducted with an extraneous apparatus of the knowledge required in such an undertaking. It was much used by Johnson.

Junius lived to his eighty-ninth year, dying in 1678, at Wrotham House, near Rochester, in Kent, where he was appointed to the great names in the list of the really learned. He had formed a most valuable collection of manuscripts, which he bequeathed to the University of Oxford, and they are now kept in the treasures of the Bodleian Library.

JUNIUS'S LETTERS. [Francis, Sir Philip.]

JUNO, a Roman divinity, whose attributes are nearly the same as those of the Grecian Hera. She was the daughter of Kronus and Rhea, the sister and wife of Jupiter, the goddess of marriage and childbirth, and the protectress of married women. Her worship was of very great antiquity at Argos and throughout the whole of the Peloponnesus. The Samians, as well as the Spartans, are supposed to have derived their knowledge of this deity from Argos (Pausanias, iii. 17; vii. 4), and the same is said to have been the case with the inhabitants of Epidaurus, Aiginia, and Byzantium (Müller's Dorians, i. p. 410, Eng. transl.). Her name also occurs in the early mythology of Corinth. The two most celebrated images of Juno were at Argos and Samos. The latter was the largest temple with which Herodotus was acquainted (Herodotus, ii. 60). The Samians themselves denied that their knowledge of this deity was derived from Argos, and asserted that she was born in Samos (Pausanias, i. 38). The marriage of Jupiter and Juno forms a prominent feature in the worship of this goddess. She was frequently represented veiled as a bride, and carried in processions, like a bride, on a car. Her favourite birds were the cuckoo and nightingale.

She was worshipped at Rome with the epithets Pronuba,
as presiding over marriage; Lucina, as bringing children to the light; and Moneta, as the warner, to whom a temple was erected on the spot where the house of Manlius Capitolinus stood (Liv. vii. 28). The origin of the name Moneta is given by Cicero in his 'De Divinatione,' (i. 45).

JUNO, the third in order of discovery of the small

planet, discovered on the 1st of September, 1804, by Professor Harding at Antwerp, is a meteorite of stone, as is thought to be 148 feet in diameter. It is also a handsome

JUNO'S ORBIT. [Semenovitch major 2 66 947, that of the earth being assumed as the unit.

Excentricity 0° 2551182.

Inclination of the orbit to the ecliptic 2° 40' 30".

Longitude of the ascending node 170° 41' 22".

From the mean longitude of perihelion 54 12 22 3' equinox of the Mean longitude = 220 50 18 9' Epoch 1853.

Mean daily sidereal motion 913° 76167.

JUPITER, the supreme Roman deity, known to the Greeks as Zeus, appears to have been originally an elementary divinity, who was worshipped as the god of rain, snow, lightning, &c. The etymology of the name, independent of other considerations, would lead us to this conclusion; since Jupiter was originally called Jovis a Fater, or Died-pater (father of the world), the Latins named himself as Jupiter behind the name of the god, and the Latin word diurnus has become diurnal. Jupiter, or Juppiter, would mean the sun of the day and the air; the first part of the word is the same as in the Latin word adius and adjective diurnus. This is also probably the original meaning of the Greek ζωή and θεός; though some have conjectured with considerable probability that Jov-is and Zeus are the same both in meaning and etymology, the etymology of the word being strikingly similar, though probably accidental, between the word Jov-is and the Hebrew name of the supreme deity (Τυτ्त). If there were any doubt respecting the original meaning of Jup-jupiter and Jov-is it would be sufficient to refer to those numerous passages in Latin authors in which the word is used in the sense of air (for example, Horace, Od. i., 1, 25; Cicero, De Nat. Deor., i. 15).

Cicero informs us (De Nat. Deor., i. 21) that there were three deities of the name of Jupiter: one the son of Jove, the second, the son of Heaven; and the third, the son of Saturn. The last was worshipped at Rome under various names, and many temples were erected to his honour, of which the most celebrated was the one on the Capitoline Hill, where he was worshipped under the name of Jupiter Optinus Maximus.

The Romans attributed to Jupiter the same power and attributes with which the Greeks invested Zeus. The Grecian Zeus was, according to Homer, the son of Kronus and Rhea. In order to save her son from being destroyed by his father, Rhea concealed him soon after his birth in a cave in Crete, where he passed the first years of his life.
As Zeus grew up, Kronos called to his aid the Titans, in order to secure his dominions against his son; but they were eventually conquered, and Saturn himself driven from his throne. In the Homeric poems Zeus is represented as the supreme ruler of the heavens and the earth; and though subject himself to the degrees of fate, his commands cannot be disobeyed; his wisdom is infinite, and his power irresistible. His wife was Hera (Juno), and their children Hephaestus (Vulcan) and Ares (Mars). His worship was widely diffused throughout Greece.

JUPITER, the name of one of the old planets, the largest of all the bodies, except the sun, in the solar system. The astronomical history of this planet (or of any other celestial body) is one of the most complete of those that we have. It is the first of the major planets to be discovered; it was actually seen by the ancients, and its orbit was described in detail by Kepler.

The first satellite of Jupiter, Io, has a mass of 1.8 Earth masses and a radius of 2,878 kilometers. It is one of the four Galilean moons, which were discovered by Galileo in 1610.

The second satellite of Jupiter, Europa, has a mass of 0.045 Earth masses and a radius of 1,521 kilometers. It is the smallest of the Galilean moons, and is known to be covered with a thick layer of ice.

The third satellite of Jupiter, Ganymede, has a mass of 0.043 Earth masses and a radius of 2,674 kilometers. It is the largest of the Galilean moons, and is known to be covered with a thick layer of ice.

The fourth satellite of Jupiter, Callisto, has a mass of 0.04 Earth masses and a radius of 2,410 kilometers. It is the most massive of the Galilean moons, and is known to be covered with a thick layer of ice.

The first satellite has no sensible eccentricity, and its orbit is very nearly in the plane of Jupiter's equator. The second has no sensible eccentricity; the inclination of its orbit to the planet's equator is under half a minute, and its nodes have a retrograde revolution of about thirty years. The third has a small but very variable eccentricity, and the line of apsides has a direct but variable motion. The inclination of its orbit is under a quarter of a minute, and its nodes make a retrograde revolution in about three days.

The fourth has a greater eccentricity, and the direct motion of its apsides is nearly three-quarters of a degree per annum. The nodes made by its orbit with that of the planet have a direct motion of 42 minutes per annum, and the inclination of the orbit to that of Jupiter is 0° 3°. Sir J. Herschel gives as the mean apparent diameter of the planet and satellites 36° 327', 1° 105', 0° 911', 1° 488', and 1° 25'.

In consequence of the smallness of the angle by which Jupiter's equator is inclined to the ecliptic, and of the nearness of the orbits of the satellites to the plane of the equator, all the satellites, except the fourth, which sometimes escapes, undergo one eclipse once in every revolution. Since [Eclipse] this is caused by the entry of the satellite into Jupiter's shadow, the eclipse is independent of the earth's position, and the observation can certainly be made, unless Jupiter be too near to the sun. It is found that an eclipse may or may not occur, and may or may not last, unless Jupiter be as much as 8° above the horizon, and the sun as much as 8° below it. It never happens that both the immersion and emersion can be observed, in the case of the first and second satellites, though it is otherwise with the third and fourth.

The reason is, that the planet always hides a part of its own shadow, and the first satellite is so near the planet that it must either enter or leave the shadow behind the planet: which also happens, for the most part, in the case of the second satellite. Before the planet is in opposition its shadow is on the western side of the planet, and after opposition on the eastern; while before the opposition immersions only are sensible, and after opposition emersions; and in about 120 days the first and second satellites. The eclipses of the four several satellites last about 24, 24, 24, and 44 hours, one time with another. For the use of these eclipses in determining Longitude, see that word.

When Jupiter is in very near opposition, the planet itself hides its own shadow entirely, so that both immersion and emersion out of the shadow may be invisible from the interposition of the planet; so that we then have the eclipse of an eclipse. And when the satellite passes between the sun and the planet, the shadow may never come into the planet into darkness, which spot will appear to pass over the disc of the planet. Lastly, a satellite may pass between the planet and the earth, in which case it is seen sometimes as a bright and sometimes as a faint point of light. All these times of all these appearances are predicted in the Nautical Almanac.

JURA, an island of the Hebrides, in the district of Isla and shire of Argyll, bounded on the east by the Sound of Jura, and on the west by that of Isla. Its greatest length is less than thirty miles, and its average width about seven miles, being comprised between the latitudes of 55° 50' and 56° 10' north, and between the longitudes 5° 43' and 6° 5' west. The island is a continuous mountain range, elevated towards the south by the distinct peaks of the three principal are called the Paps, and rise to the height of 1083 feet. The flat land lies wholly on the eastern side of the island, and is estimated at less than one-twentieth of the entire surface; the most consists of tracks of mountain pasture, intersected by many mountain torrents, and scarcely inhabited. Besides the great inlet of Loch Tarbet, the coast line is indented with several bays and harbours, the chief of which are Small Isles and Lowlandroy's Bay. On the western shore are found large quantities of fine sand, which is much in request in the manufacture of glass. Large flocks of sheep and goats are fed upon these mountains, where also may be seen occasionally red deer, grouse, and other game. This island, with those of Mull, Mullins, Scarba, and St. Kilda, with a number of others, make up the parish of Jura, which, in 1831, contained 1312 inhabitants, the greater part of whom were employed in fishing. (MacCulloch's Highlands; Beauties of Scotland; Population Returns, &c.)
JURA, a department in the eastern part of France, on the frontier toward Switzerland. It is bounded on the north by the department of Haute-Saône; on the north-east by the department of Jura, on the east by the department of Ain; on the south by that of Saône et Loire; and on the north-west by that of Côte d'Or. The greatest length is from north to south, from the bank of the Oignon near a junction with the Saône, to that of the Ain at the junction of the Valoux, 72 miles; its greatest breadth, at right angles to the length, is from the bank of the Seille, where it touches the frontier, to the neighbourhood of Norteroy, about 41 miles. The area of the department is 1,378 square miles. In density of population the department is just equal to the average of France, and superior to the English county with which we have compared it. Lons-le-Saunier, the chief town, is in 46° 49' N. lat. and 5° 39' E. long., 241 miles in a straight line south-east of Paris, or 241 miles by Provins, Troyes, Dijon, and Dôle.

The southern and eastern parts of the department are mountainous; the northern and western are more level. The mountains traverse the department from three ridges of different elevations running from north-east to south-west. The loftiest summits, lying along the Swiss frontier, have an average elevation of nearly 4000 feet, and are covered with snow six months in the year; the second ridge, capable of cultivation, and the third, covered for the most part with forests and thickets of pine, juniper, and box, has some fertile valleys and pasture grounds. The lowest ridge is covered with soil everywhere of good quality, and increasing in depth and fertility as it approaches the plain, which occupies the rest of the department.

The department belongs entirely to the basin of the Rhône: and the principal streams are the Oignon, the Doubs, and the Saône, affluent of the Rhône at Lyon; and the Ain, which falls into the Rhône several miles above that city. The Oignon flows for a few miles along the northern boundary of the department, which it separates from that of Haute-Saône. The Doubs flows through the northern part of the department in a south-west direction past Dôle.

The Seille, which rises in the lower slopes of the Jura, near the centre of the department, waters the western side. The Ain rises just in the southern part of the department, and is joined by the Seille from St. Claude and flows first north, then west, and then south into the department of Ain. None of the rivers of the department are navigable except the Ain for about seven or eight miles. The Oignon, that which joins the Rhône and the Ain, about 25 miles of which are in the department. It passes from the Saône to the valley of the Doubs near Dôle, and follows the course of that valley into the department of Doubs.

The principal road in the department is that from Paris by Dijon to Geneva. It enters the department on the north side between Auxonne (dep. of Côte d'Or) and Dôle, passes through Dôle, Mont-sous-Vaudrey, Poligny, Montbronn, Chagny, Maizières, St. Laurent, Morey, Les Rousses, and La Valtala, between these last two towns it crosses a part of Switzerland, and beyond La Valtala enters the department of Ain. A branch of this road runs to Lons-le-Saunier, and rejoins the high road at St. Laurent; other branches lead to Arbus and Salins; roads lead from Dôle and Lons-le-Saunier to other towns in this and the neighbouring departments. The aggregate length of the government roads is 206 miles, of which about two-thirds are out of repair, and one-sixth unfinished, leaving only one-sixth in good repair. The Routes Nationales have an aggregate length of 338 miles, all, except seven miles of unfinished road, in good repair. The by-roads and paturals have an aggregate length of nearly 3600 miles. The department would be rather better furnished with roads than the average of the departments, if they were kept in proper repair.

The north-western portion of the department is occupied by the strata above the chalk; the rest of the department by the strata between the chalk and the new red or saliferous sandstone: the chalk formation itself does not appear to occupy any part of the surface. (Carte Physique et Minéralogique de France; Atlas de Mont Blanc.) The salt-works of the department are considerable. Many iron-mines are worked; lead and coal are found, but not worked, and there are some traces of gold. Various species of marble of great variety and beauty, and slate, are quarried; also lithographic stones. Peat is dug; and there are several brine springs where the water of the springs of Salins yields 15 per cent. in weight.

The climate of the department varies materially in different parts, as well from the elevation of the surface. In general the winters are long, owing to the snow which remains on the mountains till April; and the temperature, even in the plains, is colder than the latitude would lead one to expect. The spring is short, and the summer hot; the air, which in the plains is close and humid, often suffers, on the lower slopes, and dry and keen in the higher ridges, where the seasons are reduced to two, a winter of eight months and a summer of four.

The agricultural produce is sufficient for the consumption of the department. The harvests in the plain are very abundant, and consist of wheat, rye, buckwheat, and maize. On the lower hills they consist of barley, oats, maize; rape-seed is also grown here. In the higher ridges of the mountains, potatoes, oats, and kale are the principal crops. Game is scarce; some barley and oats, and, in favourable spots, a little wheat and hemp, are grown. The vine is cultivated on the lower slopes of the mountains, and the quantity of wine produced is greater than the consumption. It is said that in the department of the Saône, the wine is creamy and sparkling, like champagne. The walnuts are raised on the lower hills. The quantity of woodland is considerable: the principal forests are those of Chaux, in the northern part of the department, between the Oignon and the Lons; and the contiguous forests of Mordon, Arbois, and Poligny, in the centre of the department. The trees are chiefly the pine and the oak.

The quantity of horned cattle is great, especially of cows. The dairy produce of the department, good, is well calculated for bread. The number of sheep is comparatively small: the long-wooled English sheep have however been lately introduced, and with good success. Horses are tolerably numerous, and some mules are bred. Poultry and bees are objects of considerable attention; the latter to a remarkable degree. The forest yield game and wild animals, including the wild boar, the wolf, the fallow-deer, and a few roebucks; and the rivers and lakes abound with fish, especially excellent crayfish.

The department is divided into four arrondissements, as follows:—

<table>
<thead>
<tr>
<th>Arrondissement</th>
<th>Situation</th>
<th>Area in sq. miles</th>
<th>Population in 1851</th>
<th>Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lons-le-Saunier W. &amp; S.W.</td>
<td>596</td>
<td>107,650</td>
<td>207</td>
<td></td>
</tr>
<tr>
<td>Poligny E.</td>
<td>482</td>
<td>86,672</td>
<td>149</td>
<td></td>
</tr>
<tr>
<td>St. Claude</td>
<td>405</td>
<td>52,335</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>Dôle</td>
<td>444</td>
<td>74,640</td>
<td>120</td>
<td></td>
</tr>
</tbody>
</table>

1927 | 315,355 | 573 |

It is divided into thirty-two cantons, or districts under a justice of the peace.

In the arrondissement of Lons-le-Saunier are Lons-le-Saunier on the Vaille (population in 1836, 7684); Orgelet, near the Valouse (pop. 1857, 2367 whole commune), St. Amour, in the south-western corner of the department (pop. 1857 town, 2595 whole commune), Scellières, on the Brenne, a feeder of the Seille; Bletterand, Arlay, and Châlet Chillon, on or near the Seille; Conliege on the Vaille; Clairvaux, near Drosseana, a feeder of the Ain; Coquet on a small affluent of the Solane, a tributary of the Seille, belonging to the adjacent department of Saône and Loire; Gigny and St. Julien, on the upper Ain; and Annier, near Dôle.

Lons-le-Saunier, the capital of the department, took its rise in the fourth century from the salt-works, which are still of great importance. It is situated at the confluence of three small streams in a fertile valley, surrounded by vineyards. The old building of the salt-works is a fine hospital, capable of accommodating a hundred and fifty patients, and the salt-works. There are near fountains, a library, a museum, a high-school, a theatre, and an agricultural society. Lons-le-Saunier is one of the chief places.
The vineyard is the foundation of the prosperity of many a Burgundian town, and the wine is an article which is carried yearly to other parts of France, and followed by the calling of 'lime-burners, plasterers, hemp-drovers, and curriers; returning home at the time of harvest.

This department forms the diocese of St. Claude, the bishop of which is a suffragan of the archbishop of Lyons. A number of the inhabitants emigrate yearly to other parts of France, and follow the calling of 'lime-burners, plasterers, hemp-drovers, and curriers; returning home at the time of harvest.

In respect of education this department is the third in France. Of the young men enrolled in the military census of 1829-30, seventy-three in every hundred could read and write.

This department formed part of the territory of the Sequani, one of the principal nations of the great Celtic stock. Under the Roman dominion it made part of the province of Maxima Sequanorum, a subdivision of Gallia Lugdunensis, or Celtica. It subsequently passed into the hands of the Burgundians and the Franks; and in the middle ages made part of the province of the county of Bourgogne, or Franche Comté. [Bourgogne; Burgundians; France, Franche Comté]

JURA MOUNTAINS. The range of elevated ground to which this name peculiarly applies lies to the west of the Lakes of Geneva and Neufchâtel, and may be described as a broad limestone ridge, swelling at several points to more than 5000 feet above sea level. The Mont de Bienne, in the Canton of Jura, is about 5500 feet, and the Mont Reusset, west of Geneva, is still higher. If to this region we give the name of the 'Swiss Jura,' the continuation of the same limestone country though Suabia and Franconia will be properly distinguished as the 'German Jura,' rising in the Raue Alp, near Ulm, to 2400 feet above the sea. The general direction of these calcareous mountains is north-eastward, but in Franconia it changes to a northward course; their boundaries are little sinuous; their breadth averages about 20 miles, and from the vicinity of Bamberg to the passage of the Rhone the length exceeds 400 miles. In a south-westward direction similar limestone rocks extend to the vicinity of Narbonne, about 140 miles farther, making the whole range of the Jura and its physically related rocks about 550 miles.

Nearly parallel to the Swiss and German Jura on the south, calcareous rocks, belonging to the same geological era, range in front of the primary rocks of the Alps, from the Rhine to Piemont 400 miles. In these ranges the same strata occupy the right side of the Saône and the left of the Meurthe and Moselle, and connect themselves with the oolites which encircle the basin of Paris. Thus the Helvetic Jura occupies a nearly central position with respect to the limestone districts of the Alps and to the elevated limestone districts, all belonging to one geological system; and hence it has become the almost universal practice of the continental geologists to designate that species of rocks by the title of the 'Jura formation,' which corresponds exactly to the 'oolitic system' of our general table. [Geology]

The mountains of the German, Swiss, and French Jura, regarded in a general point of view, may be described as extending along an immense line, a third of its length, and occupying the greater portion of Burgundy and Lorraine, the whole of Alsace, Suabia, Franconia, and Hesse. Against this enclosed region the oolitic ranges present bold and abrupt descents, while toward the exterior the slopes are gentle. The chalk and sandstone formations that constitute the Jura mountains on the French and German sides, but in the interior of the basin not a trace of it is to be found, and Von Buch believes that the Jura Mountains stood up amid the fossiliferous system of rocks, nearly as we may suppose the coral reef of New Holland would appear if elevated by subterranean forces. (Verhandlungen der Kongl. Akademie der Wissenschaften zu Berlin, 1838.) M. Boué had previously inquired the elevation of the Jura, in discussing the characters of the Bavarian tertiary region. (Proceedings of the Geological Society of London, 1830.) And M. E. de Beaumont, from a general conten-
plation of the phenomena on the line of the Jura Moun-
tains, adopted the conclusion that from the Cevennes through the Swiss and German Jura, perhaps even to the Erzgebirge, dislocations of considerable importance oc-
curred, north-east and south-west, after the depo-
sition of the oolites and before the deposition of the chalk. (Sur les Révolutions du Globe, in Annales des Sciences Naturelles, 1887.)

Von Buch observes that the Swiss, Suabian, and Fran-
conian sides of the Jura Mountains have each their peculiar characters. In the Swiss Jura the strata are thrown up at high angles of elevation, and consequently form long extended ridges and chains; the Suabian region is formed of rocks which lie in regular and nearly horizontal layers, and constitute an extended and uniform plateau; in Franconia dolomite abounds, and crowns the heights with picturesque rocks, resembling the towers and pinnacles of ruined castles. The numeral composition of the Jura ranges is everywhere similar; and, when minutely ana-
lized, may be considered as forming a series of terms sev-
ervously comparable to the larger divisions of the oolitic series of England and Normandy.

According to M. Thurman, 1832 (De la Beche's Manual), the central part of the Jura (at Poutreyn) contains-

Fine oolites and compact limestones, equivalent to the 'Portland oolite.'

Marls and marly limestones, equivalent to 'Kimmeridge clay.'

Compact oolitic and coralline limestones, equivalent to the 'Oxford oolite,' &c.

Marly and sandy limestones, equivalent to the 'calcareous grit.'

Blue marls, limestones, ferruginous oolite, equivalent to the 'Oxford clay.'

Oolitic shelly limestones, sandy limestones and marls, equivalent to the 'Combrash and forest marble' groups.

Fine-grained oolite, equivalent to the 'Bath great oolite.'

Marls and calcareous beds, equivalent to the 'Fuller's earth.'

Oolite, partly ferruginous, equivalent to the ' inferiour oolite.'

Marly marls and marls, equivalent to the 'sand below inferior oolite.'

Lias.

This coincides very nearly with M. Thirria's notice of the series in Haute Saône.

On these points M. Bœuf (1830), the German Jura contains the subdivisions of the oolitic series from the lias upwards to the cornbrash. He thus includes in the Bath oolitic forma-
tion [Geology] the dolomite limestones of Franconia, and the limestones of Solenhofen, even more celebrated for their numerous tortoises, Pterodactylus, fishes, crustacea, ammonites, belemnites, insects, &c, than any other fossils, than the supposed equivalent beds of Stonesfield.

On these points M. Bœuf appears to be supported by Mr. H. de la Pèrée, Proc. Geol. Soc., 1833. Von Buch re-
gards the dolomites and lithographic slates as constituting a distinct upper band of the 'Jura formation' (corresponding to the Oxford and Portland oolites), and some of the highest layers of this group, full of Diacors and Nereids (as in Haute Saône), have been recently followed by him over the northern inclination of the Suabian Jura. ('Verhandlungen der Königl. Akad. der Wissenschaften zu Bonn.)

Von Dechen's opinion on this subject appears to coincide with that of Von Buch; and the researches of Count Munster and Goldfuss on the organic remains may be quoted in confirmation of the view that the German Jura, like that of the British formation, contains the equivalents, more or less developed, of the whole English oolitic series; and we are en-
couraged to hope that a careful comparison of the limestone ranges which border the Alps and extend into Dalmatia will determine, more exactly than we now know, the relation which they bear to the 'Jura formation' of the rest of Europe.

The determination of the geological epoch of the eleva-
tion of the Jura ranges to constitute dry land is important, especially in reference to two phenomena which are wit-
nessed to in the fissures of the Jura Mountains, viz., the fossiliferous caverns of Franconia, and the dispersion of erratic blocks from the High Alps. The opinion of John Hunter (Dr. Travers' Oration to the College of Surgeons, 1830), that the caverns of the district of Muggendorf were filled by bears which voluntarily retired thither, has been confirmed by subse-
thuent researches. (Buckland, Reliquiae Diluvianæ; and Von Meyer, Palaeographia.) But the geological area of their existence is perhaps subsequent to the whole tertiary period.

While Von Buch's view of the origin of the Jura land-
stones seems to imply their prominence as islands in the ancient European sea before the deposition of the chalk. If this opinion be well founded, the problem of the dis-
perison of the erratic blocks from the High Alps, which has been involved in a considerable difficulty. These blocks lie in vast abundance on the south-
eastern slopes of the Jura, and ascend towards the sou-
thern summits, even to the height of 1000 or 2000 feet above the sea, where they rest on the bed of the Rhone; the slopes of the Jura lie fragments from the Bernese, Alps. They occur in greatest abundance opposite the mouth of the great valleys which descend from the High Alps; at such points they have been drifted farthest up the Jura, in some cases even to the bottom of the Valais

The great valleys which descend from the High Alps are bordered by the extremely thick deposits of the Jura, and the waters between the Jura and the mountains whence the blocks were drifted.

These blocks lie in such a manner that ordinarily those which come from a particular district are distinct from the others, and seem to have been brought by rivers or stream. Blocks from the Grisons have descended the valley of the Rhine; those found on the shores of the Lake of Zurich, and in the drainage of the Limmat are derived from the mountains of the Jura; while in the valley of the Rhone and on the slopes of the Jura lie fragments from the Bernese Alps. They occur in greatest abundance opposite the mouth of the great valleys which descend from the High Alps; at such points they have been drifted farthest up the Jura, in some cases even to the bottom of the Valais. These blocks lie in such a manner that ordinarily those which come from a particular district are distinct from the others, and seem to have been brought by rivers or streams.

To account for these facts, numerous speculations have been proposed. De Lue imagined a projective force to have dispensed these blocks when the Alps were raised; Suibson, Escher, Von Buch, De Beaumont, &c. speak of the effect of water thrown into violent agitation (as some think the elevation of the mountains); Dolomieu attributed the transportation of the blocks to the pressure of the sea; but these are insufficient explanations of the phenomena by the ordinary agencies of nature. It is almost desperate, to operations subsequent to the scattering of the blocks; Venturi introduced the consideration of floating ice-rafts, since become popular; while others have attempted to master the difficulty of the problem by admit}

JURISPRUDENCE. The Roman law (from praeventio) came, by a natural transition, to mean knowledge or understanding. 'Habeat (seas No-
esta, 1826); c. 2) magistratus, or other public officials, who had charge of the military, were termed civitum rei militari; hence persons skilled in the Roman law were called juris prudentes, or simply prudentes; in the same manner that they were called consulti, as well as juris consulti. (Haubold's Sineastium Institut., iv., 1826, lib. iv., cap. 5; Hugo, Geschichte des Romans.

A large part of the Roman law was gradually adopted by the legislature and the judges from the writings of the jurists; the emperors moreover appointed persons who were to be the judges bound to follow. (Dig., lib. i, tit. 2, No. 5; 3, 5-7; Inst., lib. i, tit. 2, 3 a.) According to the acceptance of the term prudenti jurisprudens in the Roman law, juris prudentia is sometimes limited to the multitude of a practical lawyer, applying rules of law to individual cases; whence the technical use of the term jurisprudence in the French legal language for law founded on judicial decisions, or on the writings of jurists.

Jurisprudence is properly meant the science or philosophy of positive law, as distinguished from jurisprud-
cular jurisprudence, or the knowledge of the law of a
determinate nation. General jurisprudence, or the phi-

lology of positive law, is not concerned directly with the

systems of particular and positive law, and which each of those various systems inevitably involves, yet it is the title of praise or blame, or let it accord or not with an assumed measure or test-
General jurisprudence is concerned with law as it necessarily is, rather than with law as it ought to be; with law as it must be, be it good or bad, rather than with law as it must be, if it be good. (Austin's Outline of a Course of Lectures on General Jurisprudence, p. 3.) For example, every system of positive law must involve such notions as sovereignty, legal right, legal duty, legal sanction, civil or criminal injury, the grounds of imputation or legal guilt, and the punishment, procedure, property, possession, &c., which therefore belong to the province of general jurisprudence. [Law; Legislation.]

A systematic treatise on general jurisprudence does not fall within the scope of this Cyclopaedia. A detailed, precise description of the principles of doctrine of general jurisprudence will be found in Mr. Austin's work on the subject (Cass, London, 1832), and the annexed outline of a course of lectures. (Journal of Education, No. 8, p. 285.) Bentham's Traditum de Legislatione also contain much valuable matter relating to this subject. A list of works on general jurisprudence may be seen in Krug's Philosophisches Lexicon, in the article Rechtsherrre.

JURY (in English law) is a term of art denoting an assembly of men authorized to inquire into, or to determine facts, and bound in both cases by an oath to the faithful discharge of their duty. The etymological derivation of the term is obviously from jur(e), to swear, whence we find this institution called in forensic Latin jurata, and the persons concerned in it known to the Anglo-Saxons as Jurat or in English Jurie. In English law, when the issue is inquiry only, the tribunal is sometimes called an inquest or inquisition, as in the instance of a grand jury or coroner's inquest; but when there is to be a sworn and sworn by it for judicial purposes, it is always styled a jury. Whereby innumerable records, written in the popular language at the present day, it signifies the determination of facts in the administration of civil or criminal justice by twelve men sworn to decide facts truly according to the evidence. *Jurata* (inquisitoria jurata), a formal appointment of the judge to form a jury, *jurata* (infruncto inquesto), the jurata, and *juridom* and *jurisdiction* are used to denote the capacity of the judge, his right, duties, and powers, in holding a jury. There is no known authority to the effect that juries were used in the eleventh century.

Inquiry into facts on behalf of the crown by means of juries was frequent in England long before the trial by jury was commonly used in courts of justice for judicial purposes. Thus we find, immediately after the Conquest, the existence of juries of England united in the several counties, all grants by the crown, though now of more limited value, as inquisitions post mortem, which were instituted on the death of the king's tenants, to ascertain of what lands they died seized; inquisitions of lusacy (de lunatico fenestrato, etc.), a jury summons by the king to inquire into the theft of personal goods committed by or to the order of a person of the blood royal. Besides these juries of inquiry (inquisitoria jurata), there were accustatory juries (jurata delatoria), which presented sentences committed within their district or hundred to the king or his commissioned justices. These juries were immediately connected with the administration of justice, the duty being to charge offenders, who, upon such accusation, were put upon their trial before judges, and were afterwards condemned or delivered by them according to the law. Moreover, there were inquests or juries of the lives of the Romans, the conscription, accidents, and incidents of that nature forming the ground of the inquisitions of the king's bounce. The inquests held in England to determine the value of the Inquisition, the inquest on the death of a peaceable man, which was distinct from the inquests that were held on the death of a man killed in battle, and which is called an inquest of battle. (See the laws of judges in the Inquest, 8. 5. of the Inquest, 8. 5. 4. and 1. 1. 1. 1. 4.) There is no known authority to the effect that juries were used in the eleventh century.

The number of persons composing juries of inquiry and inquests in the eleventh century was arbitrary, and might consist of more or less than twelve men.

The third species of jury is the institution by which disputed facts are to be decided for judicial purposes in the administration of civil or criminal justice, and which is in effect the modern mode of trial by jury. The trial by jury was introduced immediately from Rome, and ultimately from Greece. No doubt the number of persons composing the juries enumerated in this curious tract are remarkable. (Judicex, Judicium; but it seems more probable that they are rather to be ascribed to the accidental resemblance of popular institutions for the administration of justice in different countries than to identity of origin. The precise time at which this species of trial originated in England has been the subject of much discussion, and in particular the question whether it was known to the Anglo-Saxons, or was introduced by the Conqueror, has been warmedly debated. Coke and Spelman, among earlier writers, held that the Anglo-Saxons had a system of judicial inquests, and in later times historians and jurists to Wilkins's Anglia Sacramenarum Legum (9), Blackstone (Commentaries, book iii, c. 22), and Turner (History of Anglo-Saxons, vol. iv, book xi, cap. 9), maintain with much confidence the existence of this institution before the Conquest. On the other hand, Hicks (Def. Eqit., p. 16), Reeves (History of the English Law, vol. i., p. 24), and several other learned writers, contend that it was introduced by the Conqueror, or at least that it was derived from the Normans, and was not of Anglo-Saxon origin. The latter opinion is adopted by Sir Francis Palgrave, in his History of the English Commonwealth, vol. i., p. 243. Without entering minutely into this controversy, it may be stated that the traces of the trial by jury, in the form in which it existed for several centuries after the Conquest, are more distinctly discernible in the ancient customs of Norman than in the few and scanty fragments of Anglo-Saxon laws which have descended to our time. The trial by 12 condurators, which was of canonical origin and was known by the names of _justicia in media_, &c., and which resembled the trial by jury only in the number of persons sworn; and no conclusion can be drawn from this circumstance, as 12 was not the common number throughout Europe for canonical and other jurisdictions, but was the fumus number of the juratores or jurata, as in the *duodecim sacramentalibus, which was a common phrase. (See Spelman's Gloss., tit. Jurata; also Edinburgh Review, vol. xxxi. 1. 15.) For this reason, it has been maintained by many scholars that the trial by jury is simply a ceremony added to the trial by oath, to make it more solemn, and to give a body of men sworn to decide the case, in the same way as the Twelve Men of the Inquisition, or the Twelve Men of the Conscription. (See the laws of judges in the Inquest, 8. 5. of the Inquest, 8. 5. 4. and 1. 1. 1. 1. 4.) There is no known authority to the effect that juries were used in the eleventh century.

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akin to either party, to recognize upon their oaths, &c.' On the other hand (as Madox remarks, in his History of the Exchequer, p. 122), 'if we compare the laws of the Anglo-Saxon kings with the forms of law process collected by Glanvill, the laws as different from one another as the laws of two several nations.

Though there are some traces of the trial by jury in the four reigns which immediately succeeded the Norman Conquest, and in the thirteenth century after, in the reign of Henry II., that this institution became fully established and was reduced to a regular system. Its introduction into frequent use at this period was probably owing to the law of procedure or ordinance for the trial by assise in pleas of land or real actions. This law was not common to our times, but it is fully described by Glanvill (lib. ii. cap. 7), and the greater part of the treatise of that writer is occupied by an account of the practical machinery of the trial by twelve men which he warmly eulogises and represents as having been introduced in opposition to the unsatisfactory mode of trial by battle or duel. In the reign of Henry II. it appears also that a jury was sometimes used in matters of a criminal nature—the proceeding in such cases being noticed as an inquiry 'petri servit ut vicinitas super juramentum legatum hominum.' Thus in the 'Constitutions of Clarendon,' enacted in 1164, it is directed 'if no person appeared to accuse an offender before the archdeacon, the sheriff should, if requested to do so by the bishop, cause two men to be chosen from the neighbourhood of the trouble,' to be sworn, who might declare the truth according to their conscience.' These however were probably accusatory juries, similar to our grand inquests, and not juries employed for the actual trial or 'deliverance' of criminals, which do not seem to be commonly used during that period.

The law of Henry II. introduced the trial by assise or jury in real actions as a mode of deciding facts which the subject might claim as a matter of right. Glanvill calls it 'a certain royal benefit conferred on the subjects of the realm with the advice of the nobility.' Accordingly we find in the Rotuli Curia Regis in the time of Richard I. and John, many instances of trials by jury being claimed by parties, though it appears from these curious records that in this period trials by battle were still in frequent use. In the reign of John we first begin to trace the use of juries for the trial of criminal accusations. At first it seems to have been procured by the accused as a special favour from the crown, a fine, or some gift, or consideration being paid in order to purchase the privilege of a trial by a jury. Several instances of this kind will be found collected in the Notes and Illustrations to Palgrave's Commonwealth of England, vol. ii., p. 186. The payment of a fine took place also in not infrequently civil cases where any part of the judge or the jury was suspected of corruption, as in the Rotuli Curia Regis, vol. i., pp. 354, 375; vol. ii. pp. 72, 92, 97, 101, 114. It is quite clear, however, from Bracton and Fleta, that at the end of the thirteenth century the trial by battle cases had become almost the rule of the proceedings being given by them in detail. (See Bracton, p. 143.)

Introduced originally as a matter of favour and indulgence, it gained ground with advancing civilization, gradually superseding the more antient and barbarous customs of battle, ordeal, and wager of law, until at length it became, both in civil and criminal cases, the ordinary mode of determining facts for judicial purposes. It is right to notice the popular and remarkable error that the stipulation for the judicium parcium in Magna Charta was the trial by Edward I., and that Edward II.'s commentary upon Magna Charta expressly distinguishes between the trial by peers and the trial by jury (2nd Inst. 48-9); but Blackstone says, 'The trial by jury is that trial by the peers of every Englishman, which, as the grand bulwark of his liberties, is secured to him by the Great Charter.' (Commentaries, vol. iv., p. 349.) This is confusing two distinct modes of trial. The judicium parcium was the feudal mode of trial, where the partes or conventione fudorum dominii sat jures were parties of the whole, or of the neighbor of the lord, and a judgment of their law, as in matters arising out of land. The judicium parium was the trial by jury, which could never be accurately called judicium parcium. We read frequently in the records of those times (and even in Magna Charta itself), of juratores, of

veredictum or juramentum legatum hominum, and juratores viciniti, or vicaries, of all which expressions refer to a jury; but not a single instance can be found in any charter, or in any ancient treatise or judicial record, in which the jury is called the partes or parties of their veredictum. (Commentaries of the Law, vol. i., p. 249.) In the records of the 'Curia Regis' in the first year of John's reign, among numerous entries of Pont as super juramentum vicini et patriae, are some few cases marked as 'super juramentum juratores,' plainly indicating a distinction between the two modes of trial. (Rotuli Curia Regis, vol. ii., p. 90.)

Until about the reign of Henry VI. the trial by jury was to all intents and purposes a trial by witnesses. The person accused was brought before the jury, who were then to give their verdict, according to the evidence. At what precise time this form was introduced is uncertain; but for several centuries after the Conquest, the jurors both in civil and criminal cases were sworn merely to speak the truth. (Glanvill, lib. ii. cap. 27; Bracton, lib. iii. cap. 27; lib. iv. cap. 27; Britton, p. 133.) Hence their decision was accurately termed eredictum, or verdict; whereas the phrase 'true verdict' in the modern oath is not only a pleonasm, but, symmetrically indel, 'true verdict' in the modern oath is not only a pleonasm, but, symmetrically indel, 'true verdict' in the modern oath is not only a pleonasm, but, symmetrically indel, 'true verdict' in the modern oath is not only a pleonasm, but, symmetrically indel, 'true verdict' in the modern oath is not only a pleonasm, but, symmetrically indel, 'true verdict' in the modern oath is not only a pleonasm, but, symmetrically indel, 'true verdict' in the modern oath is not only a pleonasm, but, symmetrically indel, 'true verdict' in the modern oath is not only a pleonasm, but, symmetrically indel.
mode of commencing the introduction of evidence to juries as described in this document bears a strong resemblance to the growth of the preceding in England.

The character of witnesses or of evidence being laid before juries in England, which formed the commencement of a total change in their character, occurred on the reign of Henry VI. The change was not effected suddenly, or by any particular act of parliament, but was gradually considered to be in the courts, and their habits and manners of society underwent alteration; and though distinctlyensible in the reign of Henry VI., was not completely effected before the times of Edward VI. and Mary. The Grand Jury was established on the Act "Legibus Angliae," written at the end of the reign of Henry VI., and about the year 1476, expressly mentions that witnesses were examined and sworn before the jury; but he calls the jury indiscriminately testes et juratores, and makes frequent allusions to their character as witnesses. Shortly after Fortescues time, namely, in the year 1498, there is a reported case between the bishop of Norwich and the earl of Kent (Year Book, 14 Henry VII.), in which a jury had been separated by a tempest; while the parties were showing their evidence; and one question raised for the opinion of the court was, whether, when the jury came together again, they were competent to proceed with the case and to give a verdict. The objection pressed was that the jury had been exposed to foul, unlawful influences, which, if answered, that the giving of the evidence was wholly immaterial, and made the matter neither better nor worse; that evidence was only given in order to inform the consciences of the jury respecting the rights of the parties, and to oblige them to give a verdict, and the jury would be bound to deliver a verdict.

About the same period, that is, in the reign of Henry VII., it appears from records printed in Rustells Entries that demurrors to evidence were an acknowledged form of proceeding, which shows that at the time evidence of some kind was given, and consequently that the character of the jury had been in some degree changed from that of witnesses to that of judges of facts upon testimony. The proofs mentioned in these accounts are not substantiated; and, therefore, it is only from the first the only evidence given consisted of deeds, writings, and of admissions of absent witnesses taken before the justices of the peace or other magistrates, and that oral testimony was not common until a later period. The entire absence of all mention of evidence of witnesses, as contradistinguished from juries, in treatises, reports, records, or statutes, previously to the sixteenth century, strongly corroborates the fact of the early character of the trial by jury. There is no trace of any rules of evidence, of the practice of fair questions and answers of witnesses, or punishing them for false testimony or non-attendance, nor of the existence of any process against them before the Statute 5 Eliz., c. 9. (1582). In the case of Summers v. Mosely, reported in 2 Compton and Meeson, p. 464, Middlesex, 1705, Sir Matthew Hale has been understood by many precedents of the common Subhaya ad testificandum of an earlier date than the reign of Elizabeth, and expresses a conjecture that this process may have originated with the above-mentioned statute. The Subhaya ad testificandum does not appear in the registers of Writs and Process until the reign of James I. (West's Symbolography.) Witnesses were examined orally upon the trial of Sir Thomas Moore, in the reign of Henry VIII.; but the reported suits in trials in the reign of Henry VI., and Mary, show that the practice in that respect was then by no means settled. In the reign of Elizabeth however there is abundant proof, from Sir Thomas Smith's "Commonwealth of England," and other authorities, that oral testimony was used without question in criminal trials; and consequently it cannot be doubted that about the middle of the sixteenth century the trial by jury had fully assumed the character in which we are now familiar with it, namely, an institution deciding facts for all civil and criminal purposes by the means of testimony or evidence produced before the jury.

This view of the original character and office of the jury seems to account for the practice of fining or otherwise punishing juries by venality, ignorance, goliardical licence, and disorderly practice which was partially continued, though not without remonstrance by legal authorities, after the nature of the institution had been changed. If juries, who were merely witnesses sent for to inform the court of facts which they were presumed certainly to know, returned a "wildly false verdict, they were guilty of a contempt of justice, and might properly be punished; but when their evidence was the result of their own knowledge of the facts, but upon the impressions produced on their minds by the evidence, such a course of summary punishment became intolerable injustice; and though occasionally practised in the sixteenth century, was generally prohibited after the Criminal Jurisdiction in Bushell's case, reported in Vaughan's Reports, p. 133.

The juries now in use in England in the ordinary courts of justice are juries of the petty or common courts, and special juries. Grand juries are employed in the courts of criminal jurisdiction; their office is to examine into charges of crimes brought to them at assizes or sessions, and if satisfied that they are true, or at least that they deserve more particular examination, to return a true indictment against the accused, upon which he is afterwards tried by the petty jury. A grand jury must consist of 12 at the least, but in practice a greater number usually serve, and 12 must always concur in finding every indictment. No further qualification is required for grand juries (except in the case of grand juries at the sessions of the peace, provided for by the recent Jury Act) than that they should be freeholders, though to what amount is uncertain; or freeholders, not aliens or outlaws, (Hawkins's Pleas of the Crown, chap. 26.) was 16.

Until the end of the sixteenth century the only qualification required for petty or common juries, for the trial of issues in criminal or civil courts, was that they should be freemen, as before the reign of Elizabeth, and this was usually rather explained to mean free tenants, or free burgesses in towns; and lawful men, that is, persons not outlawed, aliens, or minors, but entitled to the full privileges of the law of England. By the statute of Westminster 2, passed in the thirteenth year of Edward I. (1266), it was enacted that no man should sit on juries who had not some freehold of the value of 20l. a year within the county, or 40l. without it; and this qualification was raised to 40l. in counties by the stat. 21 Edward I. This was to protect the poor persons from being oppressed and injured by being summoned to serve on juries, and also to obviate the evil of the non-attendance of jurors, which frequently occurred from their inability to leave their agricultural or handicraft occupations. The stat. 2 Henry V. however was expressly intended to secure the intelligence and responsibility of jurors by requiring a property qualification. With this view it enacted that no person should be a juror in capital trials, nor in any res. actions, or personal actions where the debt or damages did not exceed 40 marks, unless he held land or tenement of the yearly value of 40l.; and if he had not this qualification he might be challenged by either party. This continued to be the qualification of common jurors until the passing of the act 5 & 6 George II. 24. which repealed all former statutes upon this subject, and entirely remodelled the law respecting juries. By this statute every man (with certain specified exceptions) between the ages of twenty-one years and sixty years who has within the county in which he resides 10l. a year in freehold lands or rents, or 20l. a year in leaseholds for unexpired terms of at least twenty-one years, or who, being a household, is rated to the poor-rate in Middlesex on a value of not less than 30l., and in any other county of not less than 20l., or who occupies a plot containing not less than fifteen windows, is qualified and liable to serve on juries in the superior courts at Westminster and the courts of the counties palatine for the trial of issues to be tried in the county where he resides, and also to serve in grand juries at the sessions of the peace, and on petty juries for the trial of issues triable at such sessions in the county in which he resides. The exceptions are;—peers, judges of the superior courts, clergymen, Roman Catholic priests, dissenting ministers following no secular employment but that of a schoolmaster, serjeants, and barristers at law, and doctors and advocates of the civil law actually practising; attorneys, solicitors, and proctors actually practising; officers of courts actually exercising the duties of their respective offices; justices of the peace; keepers of gaols, and all members and licentiates of the college of physicians actually practising; surgeons, being members of one of the royal colleges of surgeons in London, Edinburgh, or Dublin, and actually practising; sportheaters certified by the Ape-
Theories, company and actually practising; officers in her majesty's navy or army on full pay; pilots licensed by the Treasury, or those in the books of vessel and light service; pilots licensed by the lord-warden of the cinque ports, or under any act of parliament or charter; household servants of the sovereign; officers of customs and excise; sheriffs' officers, high constables, and parish clerks.

The clerk then arranges the list in a book, which is called the 'Jurors' Book' for the ensuing year, and afterwards delivers it to the sheriff. From this book the names of the jurors are enrolled in panels for each county.

Special jurors are composed of such persons as are described in the 'Jurors' Book' as esquires, and persons of higher degree, or as bankers or merchants; and it is the duty of the sheriff to make a distinct list of such persons, which is called the 'Special Jurors' List.' When a special jury is ordered by any of the courts, which must always be the result of a special application of one of the parties, 48 names are taken by ballot from this list in the manner particularly described in the statute, which are afterwards reduced to 24 by means of a lottery. The jurors first of the 24 who answer to their names in court are the special jury for the trial of the cause.

The legitimate mode of objecting to a jury by the parties is by the modern practice of the courts, seldom resorted to, having yielded to the more convenient usage of privately suggesting the objection to the officer who calls the jury in court; upon which the name objected to is passed over as a matter of course without discussion. This practice, though it is less troublesome and obvious in effecting the object of obtaining a jury indifferent between the parties than a formal challenge, is strictly speaking irregular, and being considered to take place by consent, and as a matter of favour, cannot be sustained under a trial by jury. In the former cases, challenges to the array, and challenges to the polls. The challenge to the array is an objection to the whole panel or list of jurors returned for some partiality or default in the sheriff or the other officer by whom it has been arraigned. Challenges to the polls are objections to particular jurors, either on the ground of incompetency (as if they be aliens, or of insufficient qualification within the provisions of the Jury Act, 6 Geo. IV., cap. 50, or of bias or partiality, or of infamy and 12 years have passed since the law of crime has been infamous. Upon these challenges the cause of objection must in each case be expressly shown to the court; but in trials for capital offences the accused is entitled to challenge peremptorily (that is, without giving any reason) three men of any kind; however, the accidental prosecutor, has no right of peremptory challenge, though he is not compelled to show his cause of challenge until the panel is gone through, and unless a full jury cannot be formed without the person objected to.

The trial by jury, originally introduced into the law of France in criminal cases by the National Assembly, was retained in the French code. An account of the proceeding and of the qualifications and formation of the jury will be found in the Code d'Instruction Criminelle, livre iv, tit. 2, chap. iv and v. See also Edinburgh Review, vol. xvi, p. 97, and the article Codes, les CINQ. It has often been remarked as a singular fact that the institution which has been hallowed with a provincial object to the subject against the crown, should have been preserved in France by a despotic monarch, in the zenith of his power, and certainly not disposed to enlarge popular authority. Of late years the advantage of the trial by jury has been found of such a great importance among others among German and French jurists, and in particular the propriety of its introduction has been discussed in the various commissions issued with a view to reforming the laws of several of the German states. [FEYNBACH.] The latest discussion of the subject is to be found in the proceedings of the District Court in the Canton de Vaud. The report of a commission issued by the state to inquire into this subject in 1836, against the jury, signed by a majority of the commissioners, and the protest or counter-report containing the reasons of the only commissioner who dissented from the report, have been published. Upon the subsequent discussion of the proposition in the Grand Council, in December, 1836, into which the commission reported, the canion was negatived by a majority of 90 to 40 voices.

Anciently in Scotland all offenses were tried by juries; at present all prosecutions of a higher nature must proceed by an assize or jury of 15 men, who determine their guilt or innocence, and award the fine or punishment. This is an assignment of the Law of Scotland, book iv, tit. 4.) In the course of the improvements of the court of session projected and partly executed in the years 1808 and 1809, an attempt was made to introduce the trial by jury into civil cases; but great and general opposition was made to it in that country, and the proposition was not at that time carried into effect. But in the year 1815 a statute (55 Geo. III., c. 42) was passed, though then still much opposed in Scotland, providing for the introduction of a trial by jury in the case of certain burgesses of the court of session, for the trial of particular questions of fact to be remitted for trial by the judges of the court of session at their discretion. In order to meet a conscientious difficulty much insisted upon in petitions from Scotland against this measure, namely, that it would be often impossible for a jury to give a unanimous verdict unless some of the members violated their oaths, it was provided by the act that if the jury are not unanimous in 12 hours, they are to be discharged, and the trial is to proceed in an independent tribunal, as the statutory court of session, for the trial of particular questions of fact to be remitted for trial by the judges of the court of session at their discretion. The idea of trying some of the higher civil cases by juries was gradually extended, but it was not till the year 1824 that a statute (58 Geo. III., c. 90) was passed, and this act of 1824 was the real commencement of the system of trying at common law, but by a jury, the court of law, and the court of equity, and the court of Exchequer, in competent cases, as the independent tribunal for Scotch trials.

In Russia, during the present century, a system of trials by juries has been adopted in some of the provinces, and in various parts of Saxony, Germany, and France. The first efforts in this direction in England were made in 1840. The Committee of Council on the Reform of the Criminal Law, in its report of 1838, is said to have urged upon the government the propriety of trial by a jury on the criminal cases. The majority of the committee deprecated the attempt to adopt juries in criminal cases, not only as subversive of the common law, but as fatal to the protection of the public welfare.
This memoir which had opened his eyes to the real principles of botanical classification and made him a botanist. It is here that is found the first distinct trace of those clear ideas concerning the relative importance and subdivision of characters which the author subsequently applied to the whole vegetable kingdom. In reality there is no natural order of plants altogether intended for this purpose as that which happened to be selected.

From this time, that is, from the year 1774 up to 1789, De Jussieu was constantly occupied in demonstrating to his contemporaries and to future botanists, his new method with all the advantages and disadvantages in practice, he was able to alter and improve it yearly. The distinctions of genera, their mutual relation, the general sequence of their orders, and in addition all that was written by other botanists during this period, became, to him, familiar to him, that his son records his having actually commenced his great work, the 'Genera Plantarum,' in 1789, without having prepared more than the commencement of the manuscript; and he adds, that he was seldom, during the printing, above two sheets in advance of the compositors; a very remarkable circumstance, if the extreme attention to clearness and arrangement conspicuous in this work are borne in mind. It is however always to be remembered, that in those days botany was more a pastime than a science. De Jussieu enumerated only 2700 genera, while one, not of the latest general works, includes between 7000 and 8000.

This extraordinary work made its way slowly. At the close of its appearance the greater part of botanists were full of ridicule. In addition to which he ordered the vegetable kingdom into classes, subclasses, orders, and genera, not according to certain arbitrary distinctions, but by taking into consideration all the circumstances which he was acquainted with in their manner of growth and degree of development, he divided them, and his system was at first considered as a speculation in that country. But in the other nations of Europe it was otherwise. In England, when Dr. Robert Brown, Professor at Edinburgh, was preparing for his important work, he cited De Jussieu as his chief authority. At the age of 81, upon the system of Jussieu, there probably were not more than two or three botanists in this country who could understand or make use of it; and it was not till after the year 1820 that it became much known among us. In his 'System of Botany,' Dr. Brown divided the vegetable kingdom into classes, subclasses, orders, and genera, not according to certain arbitrary distinctions, but by taking into consideration all the circumstances which he was acquainted with in their manner of growth and degree of development; he divided them, and his system was at first considered as a speculation.

In determining the relative dignity of his classes, he assumed that those species are least perfectly organized which have no cotyledon or rudimentary leaves, and which are a mere seed, but higher than these, are such as have one cotyledon; and that highest of all are those whose seeds have two cotyledons: hence his classes Acotyledones, Monocotyledones, and Dicotyledones. In arriving at this conclusion he was justified by the fact that all the highest class he set was the native trees of the forest, and all their intricate apparatus of trunks, and arms, and branches; to the middle the simple-stemmed palms, lilies, and grasses; and to the lowest such forms of vegetation as trees, shrubs, and herbs.

In determining the distribution of the genera assembled under each of these classes Jussieu was influenced by other considerations. He regarded those dicotyledonous genera which have no corolla as lower than such as possess organs which are either in abundant quantity or of general advantage. All the parts of the corolla into a tube was looked upon as an indication of a structure inferior to the total separation of the petals: this gave him for his great dicotyledonous class the subclasses Apietae, Monopetae, and Polyptetae. His arrangement of the genera, a work of which he took much pride, was called Dicotyledones a serio, a purely analysis dependent upon the situation of the stamens, calling them hypogynous if the stamens originate clear of both calyx and ovary; perigynous if they grow from the calyx or corolla; and epigynous if their apparent origin is in the apex of the ovary. There seems to have been no other reason for this than that such a 'triplex staminis situs' was found to exist. The result of all these distinctions was the following scheme, to which were arranged all the natural orders known to the author:

<table>
<thead>
<tr>
<th>Acotyledones</th>
<th>Monocotyledones</th>
<th>Dicotyledones</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Stamina hypogynia</em></td>
<td><em>perigynia</em></td>
<td><em>epigynia</em></td>
</tr>
<tr>
<td><em>Stamina epigynia</em></td>
<td><em>hypogynia</em></td>
<td><em>epigynia</em></td>
</tr>
<tr>
<td><em>Corolla hypogynia</em></td>
<td><em>hypogynia</em></td>
<td><em>epigynia</em></td>
</tr>
<tr>
<td><em>Dicoptyledones</em></td>
<td><em>Monopetae</em></td>
<td><em>Polyptetae</em></td>
</tr>
<tr>
<td><em>Antheris connatis</em></td>
<td><em>Stamina epigynia</em></td>
<td><em>hypogynia</em></td>
</tr>
<tr>
<td><em>Dicoptyledones</em></td>
<td><em>hypogynia</em></td>
<td><em>perigynia</em></td>
</tr>
<tr>
<td><em>Dicotiles irregulares</em></td>
<td><em>Dicoptyledones</em></td>
<td></td>
</tr>
</tbody>
</table>

In the state of science at which this system was promulgated its excellence was most remarkable, in its facility and in the way in which it can be best improved. Its faults are the artificial nature of all the divisions except those which are primary, the difficulty in many cases of determining to which of them a given plant belongs; and the numerous exceptions to which they are by no means, which may be accounted for by the being more structural and not physiological distinctions. They have accordingly been much criticized, especially of late years, and every original writer attempts to improve them with various hypotheses. But to use the word of a person, to whose sentiments it is impossible for any botanist to refuse his assent, 'What is it that is most admired in this work? not so much the systematical key, which has been so often attacked and abandoned by modern writers, as the admirable sagacity which regulated all the details. It is the neatness of the characters, the happy employment of such as had been previously neglected, and the correct estimate of their value, the prodigality with which notes full of deep knowledge and fruitful in new ideas are dispersed throughout the work, the endless questions and doubts, which show how much the author had meditated upon his subject, and that he was among the first to regret the sacrifices he was compelled to make to the systematic arrangement of his whole. 'His 'Genera Plantarum' is now obsolete, but the recent publication of a new edition of his beautiful 'Introductio in Historiam Plantarum,' with which the work was prefaced, shows that to the last day of his existence Jussieu preserved that brilliant combination of sound philosophical principles with a profound knowledge of facts which has placed him so far above all his countrymen as a botanist.

In 1779, when the 'Genera Plantarum' was published, the political state of France was such as not to afford an end to fruitful occasions and turned the public from all thoughts of botany, disturbed the tranquil tenor of the course of Jussieu, and compelled him to mingle in the busy scenes of public life. In 1790 he was named member of the municipality of Paris, and in this capacity was charged with the direction of the hospitals and charities of that city, which he continued to exercise till 1792.
organized under the name of Jardin des Plantes; all the persons charged with the duty of public instruction were elevated to the rank of professors. To one of these, Jussieu, who has been an industrious and skilful demonstrator, became professor of rural botany. He afterwards became director and treasurer of the Museum of Natural History, and recommenced, in 1802, his botanical writings, chiefly in the form of memoirs upon his own natural orders of plants. The number of whom who began to fifteen, were continued in the 'Annales du Museum' till 1820, after which time De Jussieu became dead to science. He was then seventy-two, with a sight so feeble that it might almost have been called blindness; and he was no longer able to profit by the light of reason. Nevertheless he employed himself during his eighty-third and eighty-eighth year in dictating a new edition of his 'Introductio in Historiam Plantarum.' This work has been published in his death; and Latin, and is a remarkable proof of the vigour of his intellect even at this advanced age. He appears to have been much loved by his family and greatly respected by his friends. His amenity of character was such that he was never in any one of his writings betrayed into a single word of harshness towards his contemporaries. He died, after a short illness, on the 15th of September, 1836, and left behind him a son, Adrien, his successor in his chair of botany, and the inheritor of his name and talents, his father.

THE CLERK OF SCOTLAND. This name properly designated the clerk of court of the chief justice, or lord justiciar, of Scotland; and originally there were as many justice clerks as there were justiciars, that is, to say, one for each of the six Justiciaries: the Justiciary of Lothian, the territory of Scots south of the Forth, and one for Scotland then strictly so called, or the territory north of the Forth.

The same circumstances also which reduced the number of justiciars to one justiciary-general for the whole realm, reduced likewise the number of justice clerks. The calamitous affair of Flodden however, which we especially refer, had a further effect on the latter; for by the fall of Lawson and Henryson on that fatal field, the offices of both king's advocate and justice clerk became vacant at one time, and this at a season when fillings were few and remote. With Pitarrow was appointed to both places, and in his time a deputy was first constituted, to act as clerk to the justice court. This was the first step in the singular rise of the justice clerk from the table to the bench of the Court of Justiciary.

At the institution of the Court of Session in 1532, the justice clerk was made one of the judges. This will not surprise us when we consider the constitution of that court. It was the most ecclesiastical of the courts, and, according to the practice of such, deliberated in secret with shut doors. It was necessary therefore for the security of the crown that some of the crown officers should be continually present. The justice clerk was one of these: he was public prosecutor of the crown, the superior of all the others; and accordingly both these were lords of session.

For the same reason the king's advocate was made a lord of session; and when, from being no vacancy, or otherwise, such appointment did not or could not take place, those officers had special writs from the crown authorising them to remain in court during its deliberations.

A further rise of official dignity took place: for it having become usual to appoint certain lords of session as assessors or assistant judges to the lord justice-general, the justice clerk began in the early part of the seventeenth century to be appointed to that duty; and about the middle of the same century he had acquired the style of 'lord justice clerk.' In ten years afterwards the privy council met and passed an act, declaring the justice clerk a constituent part of the justice court; and in the act of parliament 1672, c. 16, he was made the president of the Court of Justiciary, to preside in absence of the justice-general. His rise in the ladders of preferment then began; and afterwards Sir Thomas Miller of Glenlee, took his seat on the bench, it was, by desire of the court, on the right of the lord president; to which latter office he himself afterwards rose, being the first justice clerk so promoted. And in 1811, when Lord De Barr was, the latter divided into two chambers, the lord justice clerk was made ex officio president of the second division, where the individual then appointed still remains. His salary is 2000l., besides an equal sum as a lord of session. In the end of the fourteenth century it was 10l. Scots, or 16s. 8d. sterling,

With respect to the justice clerk depute, that officer was long so termed; but at length, when the justice clerk so appointed was the son of the lord justice, and had declared a constituent part of the Court of Justiciary, his depute became termed the 'principal clerk of justiciary;' and this becoming a security, he got himself a 'depute' about the middle of last century, and the second depute about thirty years ago so stumbled upon the same theme, and are in the gift of the lord justice clerk. It is a little remarkable, that on both occasions when these changes took place, there took place also not a diminution, as we might expect, but a duplication of the salary being increased from 100l. to 200l., and that of the first depute, in 1795, from 80l. to 150l.

The present principal clerk of justiciary, so called, is the justice clerk's son; and his substitute, or the second depute clerk, is the justice clerk's grandson, Edward.

Besides these there are three other justice clerk deputes, and his appointees. They are commonly called the 'circuit clerks,' being his deputies to the three circuits of the Court of Justiciary. They had their origin in the act 1587, c. 45, which directed such clerks to be in place of the former practice of the justiciary passing through the realm from shire to shire successively.

JUSTICES OF THE PEACE are persons appointed to keep the peace within certain prescribed limits, with authority to act, as justiciary in the name of a civil nature arising within those limits, and also to do certain other things in which they act not judicially but ministerially, i.e. as servants of the crown performing official services, and it has been so directed by certain acts of parliament. The command of such justices is exercisable by them in the name of the king, subject to such regulations as the crown may from time to time prescribe.

Upon the compulsory resignation of Edward II., Edward III., or rather his mother Isabella, in his name, sent writs to the different shrieves, stating that his accession had taken place with his full assent, and commanding that the peace should be kept on pain of disinheritance and loss of life and limb. Within a few weeks from this time it was ordained, by 1 Edward III., c. 16, that for the better keeping and maintaining of the peace in every county good and lawful men who were not maintainers of barrey (malveix barrets) should be assigned to keep the peace. The mode in which these new keepers of the peace were to be assigned was constructed to be by the shrieves, with the aid of which the shires, of the king's treasurers in the counties of

The following account is generally given of the origin of the present justices of the peace. Upon the compulsory resignation of Edward II., Edward III., or rather his mother Isabella, in his name, sent writs to the different shrieves, stating that his accession had taken place with his full assent, and commanding that the peace should be kept on pain of disinheritance and loss of life and limb. Within a few weeks from this time it was ordained, by 1 Edward III., c. 16, that for the better keeping and maintaining of the peace in every county good and lawful men who were not maintainers of barrey (malveix barrets) should be assigned to keep the peace. The mode in which these new keepers of the peace were to be assigned was constructed to be by the shrieves, with the aid of which the shires, of the king's treasurers in the counties of

By 12 Richard II., c. 10, the wages of justices of the peace are fixed at four shillings per day of sessions, and two shillings for their clerks, payable out of the fines and amerciements at such sessions; but these wages, like those of members of parliament, have long ceased to be received.

Justices of the peace are appointed by parliament, by royal charter (in the case of justices in boroughs not within the Municipal Corporation Act) and the charter usually appointing certain municipal officers to be justices, and prescribing the manner in which vacancies in the offices are
to be filled up, or by a commission from the crown under the statute of 1 Edward III. The form of the commission of the peace has from time to time been altered, and the authority of the justices enlarged. As now framed it consists of two distinct parts, and contains two separate sections, that of a non-qualified justice, and of a qualified justice. Of these the form gives to any one or more justices not only all the power relating to the maintenance of the peace which was possessed by the conservators at common law, but also all the additional authority mentioned in the statutes. The persons who are not privy to the whole body, or such of them as choose to attend, act together in general sessions. [SESSIONS.

The former part of the commission is as follows:—

Victor, &c., to A. B. Greeting.

We have assigned you jointly and severally, and every one of you, our justices to keep our peace in Our county of Z., and to keep and cause to be kept all ordinances and statutes for the good of the peace and for the preservation of persons, in law and for the quiet rule and government of Our people made, in all and singular their articles in Our said county, as well within liberties as without, according to the force, form, and effect of the same, and to chastise and punish all persons that offend against the form of those ordinances and statutes, and henceforth, both within and without Our said county, as it ought to be done according to the form of those ordinances and statutes; and to cause to come before you or any of you all those who to any one or more of Our people, to any one or more of Our body of authority, are hostile or threatening to find sufficient security for the peace or their good behaviour towards Us and Our people, and if they shall refuse to find such security, then them in Our prisons, until they shall find such security, to cause to be safely kept.

A new statute, or the son of a deceased or removable, shall be a justice of the peace for any county whilst he continues in practice. By 18 Geo. II., c. 20, no person who shall be capable of acting as a justice of the peace for any county, riding, or division, within England or Wales, who is self-owning, shall be entitled to a commission, and benefit, in possession a freehold, copyhold, or customary estate for life, or for some greater estate, or an estate for some long term of years determinable upon life or lives, or for a certain term, original or reversionary, and which are not void, or void for any cause, whatsoever, the same not being in any way within the 3rd section of this statute imposes a penalty of 100£. upon those who act without having taken and subscribed the oath, and for acting without being qualified. The statute further excepts from these provisions certain official persons, &c. A justice of the peace cannot legally act after he has ceased to be qualified; but it is not necessary that he should continue to retain the same qualification, nor the absence of a qualification render his acts absolutely void.

Justices appointed by act of parliament or by the king's charter are not removable except for misconduct, but the authority of a justice appointed by the king's commission may be determined at the pleasure of the crown, either by the expiration of the opportunity of reappointment, or by a new commission, from which his name is omitted. But until notice of the revocation of the authority, or publication of a new commission, the acts of the ex-justice are valid law, and the warrant of a justice remains in force until it be revoked or superseded by the new commission, which is also determined by the death of the king by whom it was issued; but now, by 6 Anne, c. 7, s. 8, all offices, civil and military, are to continue for six months after the death of the king.

The 9 Geo. IV., c. 17, repeals the statutes which imposed the taking the sacrament of the Lord's Supper as a qualification for office, and requires the following declaration:—

I, A.B., do solemnly and sincerely, in the presence of God, promise and engage, that I will never exercise any power, authority, or influence which I may possess by virtue of the office of justice of the peace, to injure or weaken the Protestant church as it is by law established in England, or to disturb the said church, or the bishops and clergy of the said church, in the possession of any rights or privileges to which such church or the said bishops or clergy are or may be entitled. The omission of this pledge, &c., does not render a person acting as a justice of the peace to any penalty; the statute and the 5th merely renders the appointment void; and whilst the justice continues in the exercise of his office his acts are not either void or voidable so as to affect the rights of those who possess the same.

Justices of the peace, when they are out of the county, &c., for which they are appointed, have no coercive power; but examinations, recognizances, and informations voluntarily taken before them in any place are good. But by 25 Geo. III., c. 49, justices of the peace and coroners for counties may act in one of those counties for another of them, and those who act for a county at large may act for such county within any city, town, &c., being a county of itself, and situated within, or adjacent to, any such county at large; and by 1 and 2 Geo. IV., c. 63, a similar power is given to county justices to act within any city, town, &c., having exclusive jurisdiction, though not a county of itself.

Justices of the peace have in general no authority over matters arising out of the district for which they are appointed, but they may secure the persons of those who are charged before them with felony or breach of the peace; or against whom proceedings are taken by the Municipal Corporation Act, s. 111, in every borough to which the king does not appoint a court of quarter-sessions. The justices of the county within which such borough is situated are to exercise in it the same jurisdiction as in any other part of the county.

By 24 Geo. III., c. 31, an original warrant is issued, escape, go into, reside, or be in any other county, &c., out of the jurisdiction of the justices granting the warrant, any justice of the county, &c., where such person escapes, &c., upon proof on oath of the handwriting of the warrant, is to indorse his name thereon, which will be a sufficient authority to execute the warrant in such other jurisdiction, and carry the offender before the justice who indorsed the warrant, or some other justice of the county, &c., where it was indorsed. Summons and warrants issued by borough justices, appointed under the provisions of the Municipal Corporation Act, in a matter within their jurisdiction, may be executed at any place within the county in which the borough is situated, or at any place within seven miles of such borough, without being backed.

The judicial authority of a justice out of sessions is both civil and criminal—civil, where he is authorized by statute to adjudicate between master and servant, or to enforce the regulations of friendly societies [FRIENDLY SOCIETIES], &c.; criminal, where he requires surety of the peace or a recognizance for the peace or for good behaviour, or where there is any act in the suppression of riots, or where he acts with summary power to decide upon the guilt or innocence of the party accused, according to the view which he may take of the evidence, and to punish the offender. But all proceedings before justices, whether civil or criminal, if removed into the King's Bench, are there treated as belonging to the crown side of the court.

Where a statute empowers justices to hear and determine an offence in a summary way, it is necessarily implied that the party be first cited to appear, so that he may have time to have her advice, &c., or the statute otherwise requires it.

Upon the hearing of informations and in other preliminary proceedings before justices out of sessions neither the prisoner on the one hand, nor the prosecutor on the other, can claim the right of calling in evidence a legal advisor present, except, it would seem, in cases in which the deposition may by some statutory provisions be made evidence against the accused upon his trial for the offence in the event of the death of the witness. In practice solicitors and attorneys are often called in as a matter of courtesy to advise and protect the interest of prisoners. Every person has a right to be present before
a justice, acting in his judicial capacity. But although in such a case a counsel or attorneys, or any third persons, are at liberty to attend, they cannot insist upon being heard on any respective points, the justice davon and to hear him, or to allow him to interfere with the proceedings. But now, by 6 and 7 Will. IV., c. 114, in all cases of summary conviction, persons accused are to be admitted to make their full answer and defence, and to have all witnesses examined, and cross-examined by counsel or attorney. In all cases where justices are directed to take examinations or evidence, it will be implied that the examination or evidence is to be taken under the sanction of an oath or solemn affirmation.

So as to enable the justices to award damages to an injured party, as in cases of assault [assault], or malicious injuries to property. [Malicious Injuries.]

Where a complaint is made before a justice, and a summons or warrant issues, the justice upon hearing and determining the matter may award costs to either party, and enforce the payment of such costs.

Justices ought not to exercise their functions in cases in which they are themselves the persons injured. They should cause the offenders to be taken before other justices, or, if present, should desire their aid. In all cases which a justice may hear and determine out of sessions upon his own view, or upon the confession of the party, or upon oath of witnesses, he ought to make a record on parchments under his hand, which record should in the case of summary convictions be returned to the next sessions and there filed. By 27 Geo. II., c. 20, in all cases where a justice is required to grant a warrant for the apprehension of any person not, or any sum of money directed to be paid, by any statute, the justice granting the warrant is empowered therein to order and direct the goods distrained to be sold within a certain time, to be limited in such case (so as such time be not less than fourteen days, or more than eight days), unless such penalty, or sum of money, with reasonable charges of taking, keeping, and selling the distress, be sooner paid.

When justices refuse to hear a complaint over which they have jurisdiction, or to perform their duty, which the law has appointed, the party aggrieved by such neglect may apply to the court of king's bench for a writ of mandamus, a process by which the king requires the party to whom it is addressed to do the thing required or to show cause why it is not done. If no sufficient excuse be returned, a peremptory mandamus issues, by which the party is commanded absolutely to do the thing required. [Mandamus.]

But as justices have no indemnity in respect of their acts because done in obedience to a mandamus, this proceeding should be only in cases where there is a reasonable doubt of the justice's authority to do the required act.

Justices of the peace are strongly protected by the law in the execution of their office. Obnoxious words which would not subject the speaker to any proceedings, civil or criminal, if uttered under other circumstances, yet if spoken of a justice whilst actually engaged in his official duties may be made the subject of an action or of an indictment, or if spoken in the presence of the justice may be punished by commitment to prison as for a contempt of court; this commitment however must be by a written warrant.

Where a justice of the peace acting in or out of sessions acts judicially in a matter over which he has jurisdiction, and does not exceed his jurisdiction, he is not liable to an action however erroneous his decision may be; nor will even express malice or corruption entitle a party aggrieved by such decision to any remedy by action: the delinquent magistrate is answerable only to the crown as for an offence committed against the public. Where the justice has no jurisdiction or exceeds his jurisdiction, or having jurisdiction deviates from the prescribed legal form to an extent which renders the proceedings void, or where a conviction under which the justice has granted a warrant is set aside before the court, the party has a right to recover damages in respect of any distress, imprisonment, or other injury which may have resulted from his acts, though done without malice or other improper motive. But even in those cases, if the justice has acted bona fide, or with material capacity, his decision is binding within his jurisdiction, though by mistake he may have exceeded it and not acted within the strict line of his duty, and also in cases where a justice has acted or intended to act in the execution of his ministerial duties, he is entitled to the protection of several important statutory regulations, though where there is no colour whatever for a belief or supposition on the part of the justice that he is acting within the scope of his judicial power, the matter is left to the magisterial functions and done diverso intuius, these regulations do not apply.

Thus, no action can be brought against a justice of the peace for anything done by him in the execution of his office, or for any act or omission out of the bounds of his office, or for any writing, specifying the cause of the intended action, within which period of one month the justice may tender amends to the party complaining, which will be a bar to the action, refused by the party, or found to be sufficient by the jury. Nor can any such action be maintained within six calendar months after the committing of the act complained of; nor unless it be brought or laid in the county in which the act was committed. The defendant in such action may under the general issue, i.e. a plea simple, show that the alleged trespass, &c., give in evidence any matter of justification or excuse without being bound, as other defendants, to select one particular line of defence, and set that defence with precision upon the record in the shape of a special plea. When the plaintiff in such action obtains a verdict the judge certifies that the injury for which the action is brought was wilful and malicious, the plaintiff will be entitled to double costs of suit.

Where the action is brought on account of any conviction which the justice might be quashed or reversed, and cannot therefore be produced as a justification of the consequent distress or imprisonment, the plaintiff is disabled, by 43 Geo. III., c. 141, from recovering more than 2d. damages, or any costs of suit.

It is provided by the same act, that if the justice refuses to grant the declaration that the acts complained of were done maliciously and without any reasonable or probable cause.

When a justice acts with partial, corrupt, or malicious motives he is guilty of a misdeemeanor, for which he may be indicted, and in a criminal court, to which the King's Bench, which exercises a general superintendency over the conduct of those to whom the administration of the criminal law of the country is entrusted, will, if the application be made without delay, give leave to file a criminal information. But if the justice do not, whether the act complained of be strictly right or not, whether it proceeded from unjust, oppressive, or corrupt motives, among which motives fear and favour are both included. If the affidavits filed in support of the application disclose nothing which may not be attributable to mere error or mistake, the court will not even call upon the justice to show cause why a criminal information should not be filed. The court will not entertain a motion for a new trial of the justice, or of the jury. Notice of the intended application has been given in sufficient time to enable him, if he thinks proper, to meet the charge in the first instance by opposing the granting of the application.

The proceedings after an information has been filed or an indictment found against justices of the peace for criminal misconduct are the same as in other cases of misdeemeanor. If the defendant suffer judgment by default, or is found guilty by the verdict of a jury, the punishment is by fine or imprisonment or both; after which an application may be made to the lord chancellor to exclude him from the commission; and when affidavits are filed in the King's Bench impeaching the conduct of justices of the peace, such affidavits are either directed by the court to be filed before the chancellor, to enable him to judge whether such persons ought to remain in the commission.

The institution of justices of the peace has been adopted in most of the British colonies, and has with some modifications been retained in the United States.

JUSTICIA, a genus of Acanthacaeous Exogons, whose numerous species inhabit all the tropical parts of the world, preferring however damp woods to dry and open plains. It includes the species of Brazil and India that there occur. Many of them are never more than some few inches or small trees, and a small number are valued as gardeners' objects of ornament. As limited by Linneaus, the genus comprehended a very discordant collection of species;—mo- st of these are now elevated to the rank of a family, and have united in many new genera. As now limited, Justicia itself scarcely contains a plant of any importance.

As among the species now removed from Justicia to other genera there are some which are useful as medicinal agents,
especially in India, it may be as well to mention them here, instead of referring to genera which are not yet generally known. Thus Justicia Athadatha, celebrated in Sanscrit works by various names, as Vidimaturi, Vasika, &c., has been called Athalatha Vanka, and is chiefly esteemed as a balsam in coughs. J. Niaouli is the Justicia paniculata, and is much employed in Indian medicine, especially for the cure of ringworm and other cutaneous affections, named, according to Dr. Roxburgh, with lime-juice and pepper. It is also one of their remedies for snake-bites, but is no longer used for such purposes. Andrographis (previously Justicia paniculata) is the best known and probably the most valuable of all, as one of its names, Maha termi, implies chief, or king of biters; it is also very commonly called Amla, or Amla, and is known generally as the "Consul of India" by the name of Cretag or Krent, and has been prescribed with benefit as a bitter in this country.

It seems one of the ingredients of the Droge amere, which is well known in India, and at one time obtained considerable cupe as a cure for cholera; but it can be useful only as a stimulant and tonic.

JUSTICIAR OF SCOTLAND. The earliest individual in this high office which extant record names seems to be the Geoffrey de Malavile of Malavile in the county of Edin-

burg, who held the office of justiciar in Scotland in 1292.

The term 'Scotland' was then less extensive in its application than at present: it designated, properly speaking, not the whole territory of the realm, but that part only which was inhabited by the Scots, the sovereign, supreme consul of India by the name of Cretag or Krent, and has been prescribed with benefit as a bitter in this country.

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Durward was appointed to the office in 1303, and held it for many years. In 1322, Du-

ward was removed to England, and the office of justiciar was vacant until 1327, when it was filled by Sir John Durward. This appointment was of great importance, as it was the first time that the office of justiciar had been held by an Englishman, and it marked the beginning of the English ascendancy in Scotland. The justiciar was the chief executive officer of the kingdom, and had the power to administer justice, make laws, and execute the laws of the land.

But it was not until 1340 that the justiciar was given the title of "Lord President," which has been the official title ever since. The justiciar was also responsible for the administration of the royal estates, and had the power to collect taxes and other revenues for the king.

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sort of steward in the household of the Frank kings. After their conquest of Gaul, it came to signify a high political dignity. Dapifer, as shown in the note below, means the same as the Latin term, but was the highest in the state after the king, executing all the chief offices of the kingdom as the king's representative. He was not only at the head of the king's palace, but of all the armed forces of the state, civil and military, chief adminis-
trator of justice, and leader of the armies in war. This office
was the highest in the state after the king, exercising all the
chief offices of the kingdom as the king's representative.

The chief justice was usually, even in those times, when the
king himself was a leading man of politics, an officer in his
court acting as judges, we may conclude that a special education was not considered absolutely necessary to fit a man for the judicial office, a person who had given particular attention to the study of jurisprudence. As the
representative of the judicial portion of the grand seneschal's power, his authority extended over every court in
the kingdom. For as to what Blackstone says of the court
of the marches, i.e. the court of the lord steward of the
king's household, having been subject to the jurisdiction
of the chief justice and no writ of error lying from it to
the king's bench, it merely amounts to this, that the
court of the lord steward was in fact originally the court
of the lord high steward, and in that court either of his
successors, the chief justice or the lord steward, might
preside.

The chief justice not only presided in the king's court and
in the exchequer, but he was originally (or rather when the lord high steward fell into abeyance, partly from
reasons, partly from the political necessity of securing an hereditary succession of the qualities necessary
to fill his great and numerous duties), by virtue of his
office, regent of the kingdom during the king's absence:
but at those times writing in the name of his majesty
was done by him. Thus in this light the chief justice is to be
considered as having been the greatest subject in one
of the most distinguished men who held this high office
was Ranulph de Glanvile, who is usually regarded as the author
of the Great Charter and the
Constitutio immediatis
Anglie, the oldest book extant on
English law.

The last who held the office and bore the title of
Capitulis
Justitiae Anglie was Philip Basset: and the first who
held the office of Capitulis
Justitiae ad pleias coram
regento or in the state, was Robert de Bruis, appointed in the fifty-second year of
Henry III. Sir Edward Coke was fond of indulging his
vanity by bestowing the same title, Chief Justice of
England, upon himself and on the Grand Justiciary, the mighty
officer, who was always considered as the
court of the kings, of all the other great officers of state. In England
also something of the same kind took place, but with this
difference—that the various functions of the original grand
seneschal were scattered among several authorities, and divided into
parts, and committed to two distinct officers as his represen-
tatives: the judicial functions being committed to an
officer styled the High, or rather Chief Justiciary; the
administrative and those relating to the affairs of the king's
palace or household, to an officer styled, not the Seneschal
Angle, but the Seneschallus, or Dapifer Regius.

This explanation will be found to completely remove the
confusion that has so long prevailed among the English histo-
rians and lawyers on this subject. Our view

- Du Cange, Gloss. ad voc. Dapifer et Seneschallus also the
Grand
- Cont. in
- Cont. in
- Col. Lit. II, 418, 419. (officer of office of seneschal or warder, and some attempt at the etymology of the word, not much more successful however that these attempts of that kind usually are.

- In a modern hand by D'Erepos, who supposed it to be a" (Hist. Angl., ii, fol. 99 b. It will also be found in Harl. MSS. 305, fol. 48, transcribed in a

- See also Col. Lit. II, 418. This seems to be more than a beginning of which volume there is a well-written tract, which contains the
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- See also Col. Lit. II, 418. The one word is used, sometimes the other, but only after this passage is made.

- Among many other proofs of this, see Madox's "Form. Angle," c. 424.

- "Of a list of high stewards see Harl. MSS. 2314; "Among many other proofs of this, see Madox's "Form. Angle," c. 424.

- See a Disputation on the Office of Lord High Bailiff, by Mr. Amos, in

- In the text of the Exchequer, p. 14.

- Madox, p. 18: Beaumont's "Glanville."

- Dalby, "Hist. Eng."

- "Of a list of high stewards see Harl. MSS. 2314; "Among many other proofs of this, see Madox's "Form. Angle," c. 424.

- "Of a list of high stewards see Harl. MSS. 2314; "Among many other proofs of this, see Madox's "Form. Angle," c. 424.
on the contrary, believe, that though sanctification is a consequence of justification, yet it is distinct and separate

The reason or cause of our justification is generally divided into three parts: the originating, the meritorious, and the instrumental cause. The originating cause is the cause meritor-

1. The Originalising cause is the love of God towards his fallen creatures (Rom. iii. 24; Eph. ii. 8). 2. The Merito-

rious cause, or the cause of the efficient cause the cause merito-

The Instrumental cause is faith in the church of God, and a sense of God's love and mercy.

The consequences of justification are said to be: 1. peace with God (Rom. v. 1); 2. tranquillity of conscience; 3. adoption of the persons justified into the family of God.

JUSTINIAN'S LEGISLATION. Justinian, soon after

The Code is divided into twelve books; every book is subdivided into titles, and each title into laws. Book i.

of the first four general councils, deciding public disputa-

tions on dogmas; it then treats of the rights, privileges, and discipline of bishops and other ecclesiastical persons; next of heretics, Samaritans, Jews, apostates, &c., against whom were enacted several penal enactments; after which the book proceeds to speak of the laws, and their different kinds, and of the jurisprudence. Book ii. treats of the forms to be observed in commencing a suit; then of restitution, compensations, surities, and lastly of the oath of nullity.*

* Many of the terms here used are terms of Roman law, and as such do not admit of translation by equivalent English terms. 

compensation, interest, deposit, mandate, partnership, buying

Book v. treats of betrothment, gifts in contemplation of marriage, of marriages, women's portions, and the action that lies for the recovery of the dowry, of gifts and bequests in marriage, the disposal of dowries, and the rights of their patrons; then it explains at large the Praeto-

rian possession called "Bonorum possessio," after which it expounds the whole matter of testaments, as institutions, and other laws, of heirships, pretentions and dethronements, and the opening of inheritances, and many other matters, and the consequences of the death of the testator.

Book vi. treats of manumissions; afterwards of matters relating to specification, of judgments (sententia) and appeals, of the cession of estate or goods, of the seizure of goods, of the privileges of the exchequer, those of dowries, and the revocation of alienations made to defraud creditors. Book viii. begins with interdicts: it then treats of pledges and pawns, of stipulations, novations, delegations, &c. It contains a treatise on paternity, on the management of children, and their ingratitude; it then explains what is meant by custom, or unwritten law; it next speaks of gifts (donations mortis causa, &c.) and their various kinds; and lastly, of taking away the penalty of the crimes of children, of annulling testamentary transactions, and punishments. Book x. treats of the rights and preroga-

tives of the exchequer, of vacant goods, of treasurers, taxes levied upon the people, and tolls; of the decennalia and their office, of the freedom of citizens, of the unalienable, public rights of the cities and properties of the state, and of the various classes of public offices and functions appertaining to them. Book xi. treats of the rights common to the city of Rome and municipal towns, the right of having corporate bodies of law, and in the form of patrimony, that is, the possession of a certain class of goods, belonging to cities, towns, or other communities, of which only fragments remain, and a more complete one was effected under Theodosius ii. (Theodosian Law). Book xii. treats of the communities, and the special rights of the Jews, of the Samaritans, and of the Book.

Justinian, in his Prolegomena attached to his edition of the Theodosian code, observes that Tribonian and his associates have been guilty of several faults in the compilation of the Code; that the order observed in the succession of the titles is confused, that some of the laws have been mutilated and altered, and that nothing has been preserved which, in the times a law has been divided into two, and at other times two have been reduced to one; that laws have been contributed to emperors who were not the authors of them, or had given quite different decisions; also that the law of the emperor had been altered by the magistrates, and that no capacity could digest. The jurisconsults ever since the time of Augustus had been divided into opposite schools, and the emperors were often at variance with them, and obser-

vated to puzzle those who had to decide what was law. To put order into this chaos, was the object of Justinian. In December, 530, he commissioned seventeen lawyers, with Tribonian at their head, with full authority to exercise their discretion as to the work of the learned consultations, and to choose of those whom they considered as the best authorities. They chose about forty out of Tribonian's library, most of them jurisconsults who had lived during that period of the empire which has been sometimes called the "Golden Age," from Hadrian to the death of Alexander Severus. From the works of these writers, said to have amounted to two thousand treatises, the commission appointed by Justinian was to extract and compress all that was suited to form a methodical, complete, and accurate code of laws for the use of the student of law and the magistrate. Justinian gave Tribonian and his associates ten years' time to perform their task; but they completed it in three years. The work

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was styled 'Digesta,' and also 'Pandectar,' ('embracing all'),
and was published in December, 533. It was declared by
the emperor that it should have the force of law all over
the empire, and should supersede all the text books of the
old jurists, which in future were to be of no authority.

The following is a list of the Roman jurists from whose
works the 'Pandecte' or 'Digest' was composed, with their
several epochs, so far as they can be ascertained, and the
relative proportions which they have contributed to the
whole: in each case the proportion is less than 1. The
sum total of all the figures denotes the whole amount,
of which the several figures opposite each jurist's name
denote the proportion which his part bears to the whole.

In addition to the extracts contained in the 'Pandecte' from
each, many of them are very often cited.

Aburnus (Valens).
Aelius (Gallus, Marcianus).
Amilus (Macer, Papianius).

Africanus, lived in Hadrian's time and was a dis-
ciple of Salvius Julianus.

Alfenus, a native of Cremona, and a pupil of Ser-
vius Sulpicius, who died n.c. 43.

Anthius, time unknown.
Antistus (Maximus).
Antistus (Iribe).

Aquila, supposed by some to have lived under
Sept. Severus.

Arcadius, under Constantine the Great.

Arius (Menander).
Aurelius (Arcadius).
Cecilius (Africanus).
Caius (Gaius).
Caliatrossus, under Caracalla.

Carinius, under Trajan and Hadrian.
Ceridius (Scarolla).

Charisius (Arcadius). Claudius (Hormogenianus, Saturnius, Trypho-

nus).

Clemens (Terentius).

Domitius (Ulpianus).
Florens (Tertullianus).

Florentinus, time uncertain, supposed to have
lived under Alex. Severus.

Furus (Antheius).

Gaius, lived under Antoninus and Aurelius.

Gallus, Aquilus, a friend of Cicero, with whom
he was praetor, n.c. 66.

Hermogenianus (Hermogenianus).

Hermogenianus, under Constantine.

Jovianus, lived under Trajan.

Julianus, lived under Hadrian, was a pupil of
Jovianus, and author of the perpetual edict.

Julius (Aquilus, Paulus).
Junius (Marcianus).

Justus (Papianus).

Juventius (Celsus).

Lucius Augustus, was the head of the
school called Proculienae from his disciple Proculius.

Licinius (Rufinus).

Limeus (Marcianus, Papianius).

Macer, under Alexander Severus.

Melianus, lived under Antoninus Pius.

Marcellus, under Antoninus and Aurelius.

Marcianus, probably under Caracalla.

Marcus (Labeo).

Maximus (Salvius). Morienius, lived under Antoninus.

Maximus, time unknown.

Menander, under Severus and Caracalla.

Medius, flourished under Alex. Severus and
the Maximi.

Mucius, Quinctus, son of P. Mucius Scævola, con-
sulted in the year 639 of Rome, or n.c. 95.

Neratius, lived under Trajan.

Papias, said to have lived under Alex. Severus.

Priscus (Javeolus, Neratus).

Proculeus, lived under Nero and Vespasian.
The Laws of Justinian: The Institutes

The Institutes, a work written by the Byzantine emperor Justinian I, is the first legal text in the history of law that was systematically organized into books. It was compiled by Tribonian, a jurist and law writer who served as the imperial secretary of state during Justinian's reign.

The Institutes is divided into seven books:
1. Institutes: This book provides a general introduction to the laws and legal principles of the empire. It covers topics such as the rights of cities and citizens, the duties of rulers and public officials, and the administration of justice.
2. Digest: This book contains summaries and explanations of the laws, arranged in a logical and systematic way. It is divided into 50 books, each covering a different area of law.
3. Law Code: This book contains the actual statutes and legal decrees of the empire, arranged in a similar manner to the Digest.
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The Institutes is considered the foundation of Western and Eastern legal systems, and it has had a significant impact on the development of law in the Western world.

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nian was then in his fortieth year, and he reigned above thirty-eight years, till November, 565, when he died. His long reign forms a remarkable epoch in the history of the world. Although himself unwarlike, yet by means of his able generals Belisarius and Narses he completely defeated the Vandals and the Goths, and re-united Italy and Africa to the empire. Justinian was the last emperor of Constantinople who, by his dominion over the whole of Italy, re-united in some measure the two principal portions of the antique empire of the Caesars. On the side of the East the arms of Justinian repelled the inroads of Khasroo, and conquered Colchis; and the Negotian and Chosroean enemies were driven from their frontiers by him. On the Danubian frontier the Gepids, Longobards, Bulgarians, and other bords were either kept in check or repulsed. (Belisarius.) The wars of Justinian's reign are related by Procopius and Agathias.

Justinian must be viewed also as an administrator and legislator of his vast empire. In the first capacity he did some good and much harm. He was both profuse and penurious; personally inclined to justice, he often overlooked, through weakness, the justice of subalterns; he established monopolies of certain branches of industry and commerce, and increased the taxes. But he introduced the rearing of silkworms into Europe, and the numerous edifices he erected were repaired or fortified, attest his love for the arts, and his anxiety for the security and welfare of his dominions. Procopius, "De Aedificiis Domini Justiniani," gives a notice of the towns, temples (St. Sophia among the rest), convents, bridges, roads, walls, and fortifications constructed or repaired under his reign. The same Procopius however wrote a secret history ("Anecdotæ") of the court and reign of Justinian and his wife Theodora, both of whom he paints in the darkest colours. Theodora indeed was an unprincipled woman, with some abilities, who exercised, till her death in 548, a great influence over the mind of Jus-
tinian, and many acts of oppression and cruelty were com-
mitted by her order. But yet the "Anecdotæ" of Procopius cannot be implicitly trusted, as many of his charges are evidently misrepresentations or malignant exaggerations. Justinian was easy of access, patient of hearing, courteous and affable in discourse, and perfect master of his temper. In the conspiracies against his authority and person he often showed both justice and clemency. He excelled in the private virtues of chastity and temperance; his meals were short and frugal: on solemn fasts he contented himself with water and vegetables, and he frequently passed two days and as many nights without tasting any food. He allowed himself little time for sleep, and was always up before the morning light. His restless application to busi-
ness and to study, as well as the extent of his learning, have been attested even by his enemies ("Anecdotæ," c. 8, 13). He was or professed to be a poet and philosopher, a lawyer and theologian, a musician and architect; but the brightest ornament of his reign is the compilation of Ro-
man law [Justinian's Legislation] which has immor-
talized his name. Unfortunately his love of theological controversy led him to interfere with the consciences of his subjects, and his penal enactments against Jews and hes-
ties display a spirit of mischievous intolerance which has ever since afforded a dangerous authority for religious per-
secution.

Justinian died at eighty-three years of age, on the 14th November, 565, leaving no children, and was succeeded by his nephew Justinus II. (Ludovig, Vita Justiniani Magni; Gibbon, ch. xi.-xv.)

Coin of Justinian.
British Museum. Actual Size.

Justinianus II., son of Constantine III., a lineal descendant of the Emperor Heraclius, succeeded his father on the throne on the twenty-fifth day of January, 565, his reign, which lasted ten years, was marked chiefly by wars with the Saracens, and by the executions and oppressions of his ministers. At last his general Leontius drove him from the throne, had his nose cut off, and banished him to the Crimea, A.D. 574. Leontius however was soon after deposed himself and banished by Tiberius Apsimerus, who reigned for seven years. Meantime Justinian had escaped from the Crimes, and married the daughter of the Kakan, or king of the Gazari, a tribe of Turks; and he afterwards, with the assistance of the Bulgarians, entered Constantinople, and put to a cruel death both Leontius and Tiberius, with many others. He ordered also many of the principal people of his time to be put to death; and Justinian was de-
troned and killed by Philippicus Bardanes, A.D. 711.

Justinus I., by birth a peasant of Dacia, in his youth enlisted in the guards of the emperor Leo I. Under that and the two following reigns Justin distinguished himself by his readiness and spirit in the service of his prince, whether in civil or military occupations, for he was a man of many parts. Justin was zealous for the restoration of the church, and, in the capacity of a com-
mander, showed the desire and capacity of a Christian. Justinian, "de creatione," was effectuated between the Greek and the Roman churches, A.D. 520. The murder of Vitalianus, who had been raised to the consulship, but who, having excited the suspicion and jealousy of the court, was stabbed at a banquet, cast a deathblow upon the character of both Justin and Justinian. In other respects Justin is represented by the historians as honest and equitable, though rude and distrustful. After a reign of nine years, being afflicted by an incurable wound, and having become weak in mind and body, Justin died in favour of his nephew, and died soon after, in A.D. 527.

Justinus II., nephew of Justinus I., by his mother Vigilantia, was raised to the throne by the senators and the guards immediately after the death of his uncle, on the 15th November, A.D. 565. Soon after completion of his banishment, Justinus II. reached Constantinople from the Romans against Nar-
ses the conqueror of the Goths, and exarch of Ravenna, whose great qualities were stained with savor, and whose government had become unpopular in Italy. A new exarch, Narses, was appointed to rule in Ravenna, and the empress Sophia, Justin's consort, added to the letters of the insolting, that the eunuch Narses should lead to men the exercise of arms and the dignities of the state, and return to his proper place among the maidens of the palace, where a distaff should be placed in his hand. To this insult Narses is said to have replied, "I will spin her such a thread as she will not easily unravel;" and he is said to have invited the Longobards, and their king Alboin, to invade Italy. However the king was vanquished by the Longobards, and by the Julian Alps, A.D. 568, and in a few years all North Italy was lost to the Byzantine emperor. The provinces of Asia were likewise overrun by the Persians. Internal dis-
content prevailed in the capital and provinces, owing to the innovations of the government, and Justinus himself, deprived by infirmity of the use of his feet, and con-
finned to the palace, was not able to repress abuses and infuse vigour into the administration. Feeling at last his impo-
tence, he resolved on abdicating the crown, and as he had no son, he chose Tiberius, the captain of his guards, as his suc-
cessor. The conduct of Tiberius fully justified Justin's suc-
cessor. Justin lived four years after his abdication, in quiet retirement, and died in the year 578.
JULAND is the name of a large province of the kingdom of Denmark. The name was formerly given to the whole of the peninsula, which constitutes the continental portion of the kingdom. At present the name is restricted to the northern half, which is sometimes called North Jutland, the Duchy of Schleswig, being the Island of Schleswig now settled in Kent. The Saxons under Ella came a.D. 477, and the Angles did not come till the following century.

JUTES, an old Teutonic or Scandinavian tribe which in the fifth century of our era appears as being settled in the northern part of the Chersonesus Cimbriae, which is still called, after their name, Jutland. Mannert (Geographia Graecae, &c.) states that this island, which they inhabited, extends from the opposite coast of Scandinavia, of the same race as the Gdtii, or Gute, mentioned by Procopius. [Goths] The first Germanic invaders of Britain after the departure of the Romans were Jutes, who, under their leaders Hengist and Horsa, landed in the Isle of Thanet, and settled in Kent. The Saxons under Ella came a.D. 477, and the Angles did not come till the following century.

ENGLAND.
and numbers of them and of hog are exported to Holstein. There is abundance of game, and wild hogs and boars are still found. The lakes, gulfs, and bays afford an inexhaustible supply of fish. The climate, through the proximity of the sea, is more temperate than might be supposed from the latitude. It is variable, with frequent fogs and storms; but the weather is not very rigorous, but in summer is often extremely hot. The inhabitants are in general illiterate, credulous, and indifferent to improvement. Till the ninth century the Jutes, from whom the country has its name, were governed by their own princes, two of whom, Godfred and Godfred, carried on wars against the English. In the second half of the ninth century the country was conquered by Gorm Gammut, king of Denmark, who annexed it to his own dominions.

The peninsula is divided into four large districts called stifts, in this instance equivalent to diocese or bishopric: Aalborg in the north, Aarhus in the east, Viborg in the centre, and Ripen in the south and west. The first two have been already described. Viborg has an area of 1050 square miles and 85,000 inhabitants. The capital, of the same name, is situated on a small lake nearly in the centre of the peninsula, and has 4000 inhabitants. It is about 24 miles in circuit, is surrounded with ramparts, has six gates, and is pretty well built. There are a cathedral and two churches, and a few mansions. The stift of Ripen, or Ribe, the most extensive of all, has an area of 3843 square miles, but is in proportion less populous, having only 150,000 inhabitants. Ribe, the capital and seat of the bishop, is a small walled town, with 3000 inhabitants. It is situated on a little river called the Ribsae, two miles from the German Ocean. Only small vessels can come up to the town, which has some trade in corn, oxen, and horses. There is one church besides the cathedral, and the oldest Latin school in Denmark (founded in 1248), with a library. Fredericia, the only fortress in Jutland, is in this diocese; it is situated on the Little Belt, has 4700 inhabitants, a Calvinist, a Roman Catholic, and two Lutheran churches, a synodical, and a custom-house for ships passing through the Little Belt, and other public buildings, and several manufactories.

JUVENAL. Of the personal history of this great poet scarcely anything appears to be certainly known. His name is variously written Decius, or Declius, Junius JV.

enuela. His birthplace, on no very sure ground, is said to have been Aquinum, a Volscian town; and he is said to have been born somewhere about A.D. 40, under Caligula, and to have died, turned of 80, under Hadrian. He was of obscure extraction, being the grandson of an enfranchised slave. Some of his biographers say that he followed the profession of a plunder. He was intimate with the poet Martial. (Martial’s Ep., vii. 24, 91; xii. 18.) It does not appear that he gained any reputation until the publication of his Satires, which was late in life, after he was turned sixty. Still later he was sent in command of a cohort of infantry to Egypt, where he died from vexation and weariness of this honourable exile, which it is said was inflicted upon him as a punishment for satirizing a favourite of Hadrian under the person of Paris, the favourite actor of Dominic. See Sat. vii. 88, where Paris is described as the bestower of military patronage.

The relative merits of Juvenal and Horace as satirists have been warmly contested. It is a question on which men will form opposite opinions, as their temperaments are more fit to relish brilliancy and playfulness, or earnest and dignified declamation. Juvenal is said to have spent much time in the schools and some will say that the effect of this, in an age not remarkable for purity of taste, may be observed perhaps in a tendency to hyperbolic invective, both of thought and style, which would soon betray a writer of less power into the ridiculous. From this let wit, command of language, and force and fullness of thought, completely preserve him: still perhaps he would produce more effect if the effort to do his utmost were less apparent. Dryden says, ‘Juvenal gives me as much pleasure as I can bear. He fully satisfies expecta-

-translation; he treats his subject home. His spleen is raised, and he drenches every sentence with a torrent of invective; but the whole effect is not unpleasing in all he says. He drives his reader along with him, and when he is at the end of his way I willingly stop with him. If he went another stage it would be too far, and turn delight into fatigue. When he gives over his sign the subject is exhausted, and the end of the passage is as the southerly wind, and a fault justly be found in him, ‘tis that he is sometimes too luxuriant, too redundant.’ His writings are addressed to the encouragement of virtue no less than to the chastisement of vice; and parts of them have been recommended by Christian divines as admirable storehouses of moral precepts. Still they lie open to the objection of descending minutely into the details of vice as to minister food as well as physic to the depraved mind. To the scholar they are invaluable for the information which they afford of ancient private life among the Romans. The editions of Juvenal are very numerous; that of Ruperti has (in England at least) nearly superseded others: it is attended by a copious body of explanatory notes, which are much needed in reading this difficult author. He is the author of the Holiday, Dryden (who however only translated five satires of the edition which bears his name), Gifford, and Hodgson.

The French prose translation of Dusaulx is highly praised.

JENYGUR, or JEPYORE, a principality in Rajputana, lying between 26° and 26° 1/2 N. lat. and between 72° and 72° 1/2 E. long. On the west it is bounded by the British possessions, and on all other sides it is contiguous to other Rajput territories. The surface of the country is in general level; the hills do not in any case acquire the size of mountains; the soil is for the most part sandy and arid, and in many places is strongly impregnated with salt, which is manufactured both for home use and for exportation. During the dry season, from February to July, the heat is excessive, and the clouds of hot sand which are driven about by the wind are so annoying as nearly to prevent travel, or to confine the inhabitants as much as possible within their dwellings. The cultivated fields are watered by means of wells, there being no permanent streams, and those produced by the rains being of little use for the purpose of irrigation during the dry season. The principal articles of produce are cotton, tobacco, and wheat, with some smaller grains. Cattle are reared for draught, and sheep for their wool. Jenygur is more populous than most of the other Rajput states, and contains numerous forts in every part of the country; a great proportion of the villages also are defended by walls, and surrounded by ditches, notwithstanding which the inhabitants formerly suffered so severely from the incursions of plunderers, that so recently as 1819 the country had the appearance of being an extensive waste, in which large herds of cattle and of deer roamed about without restriction. Since that time a state of greater security has prevailed, cultivation has been resumed, the population has increased, and the public revenue, which had been almost annihilated through the general disorganization, now yields about 800,000, per annum.

Jeypore, the capital, is situated in 25° 54′ N. lat. and 78° 38′ E. long, about 156 miles south-west from Delhi. The town is placed in a valley open to the south and surrounded by a wall of grey stone; it is well and regularly built, with four principal streets, which meet in a large square. The houses are three or four stories in height, and many of them are decorated with paintings in fresco, sculptures in stone, and other ornaments of marble. Most of the dwellings are separate and built at equal distances; they are connected by means of a low wall. The temples, although modern, are built in the present style of Indian architecture, and some of them are of large dimensions. The distance of this city from Agri is 136 miles; from Benares 515 miles; from Bombay 746 miles; from Calcutta 975 miles; and from Delhi 156 miles— all travelling distances.
K

K has the same sound which C has before the vowels a, o, u. A reference to that consonant will therefore suffice for the power of the letter; its various forms may be seen in ALPHABET. Although this letter is now superfluous, it was long the characteristic of the Dutch alphabet. It was a kind of abbreviation of the word 'koppus,' the Dutch word for cow, and was used especially by the Dutch East India Company as a characteristic of the name of the island personified as a cow.

KABYLES. [ALIGERS, vol. i., p. 327.]

KAEMPFER, ENGELBERT, well known as a botanist, and still more as a traveller, was born the 6th of September, 1685, at Lemgo, in the principality of Lippe-Detmold, in Germany, where his father was rector of the church of S. Nicholaus. He was sent successively to the schools of Hamelin, Lüneburg, Hamburg, and Lübeck, in all which he was distinguished by his rapid progress in the antient languages, history, geography, and music. He was afterwards sent to the gymnasium of Danzig. He next studied at the university of Cracow, in Poland, for three years, and at Künzberg, in Prussia, for four years more. At the last-mentioned place he applied himself closely to the study of physic and natural history. From Prussia he went to Sweden, where the extent of his knowledge and his talents induced him to offer very advantageous offers on condition of settling at Uppsala. But his desire of visiting Persia led him to decline the proposals, and he solicited and obtained the place of secretary to an embassy which was then going to Persia. The embassy passed through Moscow, Kazan, and Astrakhan, where they embarked for Persia, and landed at Nizabad, in Daghestan, on the western shores of the Caspian Sea. While they were waiting for their passports in the town of Shamaki, in Shirvan, Kaempfer made an excursion to the peninsula of Abasar; he was the first naturalist who visited this remarkable spot, its wells of naphtha, and its ever-burning fire, which he described in his 'Amenitates Exoticae.' In 1684 the embassy arrived at Isfahan, then the capital of Persia. The information which Kaempfer collected during a residence of two years at that place respecting Persia and its natural productions is embodied in his 'Amenitates.' When the embassy returned to Europe in 1685 Kaempfer entered as surgeon into the service of the Dutch East India Company, and served in that capacity in the navy then cruising in the Persian Gulf. After a long illness at Bender Abassi, he sailed for Batavia in 1689, and in this passage visited most of the countries on the western shores of Hindostan. At Batavia he occupied himself closely with the natural history of the island of Java. In 1699 he set out from Batavia on his voyage to Japan, as physician to the embassy which the Dutch East India Company annually sent to the Japanese court. He embarked in the vessel which was to touch at the kingdom of Siam, and visited Java, or Jutia, then the capital of that country. He remained at Nagasaki, in Japan, from September, 1690, to November, 1692, and during this time he accompanied two embassies to Yedo. His observations on Siam and Japan are given in his great work entitled 'The History of Japan,' the original of which has never been published, but a translation was made from a copy in the possession of Sir Hans Sloane by J. G. Scheuchzer, and published in England in 2 vols. fol., 1727. Kaempfer returned from Japan to Batavia in 1693 for Amsterdam. In April, 1694, he took the degree of doctor of physic at the university of Leyden, and in the theses which he published on that occasion he showed that the Agrus Styrhis; or Barometz, a pretended plant-animal, was nothing but a fiction he also described 'other remarkable objects, and among them the electrical eel. On his return to his native place his reputation soon procured him the honour of being appointed physician to his sovereign, a circumstance which brought him into extensive practice. But his main study was the precious metals, and he published his discoveries on that subject. In 1702 he published his 'Amenitates Excitae,' and in 1704, his 'Amenitates Exoticae,' which he designed to publish only his 'Amenitates Excitae' appeared during his lifetime (1712). His 'History of Japan,' as already observed, appeared much later, and only in English, from which it was afterwards translated into German and French. He died on the 2nd of November, 1716, his health having been much impaired by his travels and some domestic calamities. If we consider the variety, extent, and accuracy of the information contained in Kaempfer, we may confidently place him at the head of those naturalists who, more than any other class of travellers, have enlarged our knowledge of natural history and geography, and he may be considered as the precursor of Tournefort, Palis, Sir Francis Hamilton, and Alexander von Humboldt.

(Scheuchzer's Life of Kaempfer, in his translation of the History of Japan.)

KAEMPFERIA, a small genus of Indian Scitamineae, or Zingiberaceae of some authors, of which the species are indigenous to the islands of the Archipelago and the southern parts of the continent of India, as Bengal and the districts on its eastern frontier. All are furnished with tuberous roots like the turmeric and ginger plants. The spikes of the flowers are short and rising from the root, in some species before, in others with, and nestled among the leaves: all are highly ornamental, and K. rotunda, called by the natives bhoi champa, or ground champa, is much cultivated in gardens on account of the beauty and fragrance of its blossoms. It is frequently planted at the entrance of the shops, but incorrectly as Dr. Roxburgh thinks, since he considers his Curcuma Zedoaria to be the plant. So K. Galanga was, equally incorrectly, long supposed to yield the Galanga of the shops. [GALANGA.] It is a native of the mountainous districts beyond Chittagong, and there called Kumulata, and is cultivated by the Mugs; by them it is sold to the people of Bengal, who use it as an ingredient in their betel. The roots possess an agreeable fragrant smell, and a somewhat warm, bittersh, aromatic taste. The Hindus use them, according to Dr. Roxburgh, not only as a perfume, but also medicinally. The roots of K. angustifolia are, according to the same authority, used as a medicine for cattle by the people of Bengal.

KAFFA, called also Feodosia, is a town built on the south-eastern shores of the Crimea, in 45° 2' N. lat. and 33° 20' E. long., on a wide open bay, which is more than twenty miles across. The town stands on the most western angle of this bay, and its harbour is protected by a projecting cape. In ancient times the town was called Theodosia, and was one of the towns of the Greek kingdom of the Bosporus. [Bosporus.] According to the author of the 'Periplus of the Euxine' it was a Milesian colony. Its importance appears to date from the time of Leucon, the contemporary of Demosthenes, who made it a port, and gave certain advantages to Athenian ships which came there for the purpose of carrying grain back to Athens. According to the author of the Periplus (who probably lived in the second century of the Christian era), it was then called Ardauda in the Alan or Tauric dialect, which name signifies 'the seven gods.'

In the middle ages it seems to have been a considerable place, but especially so between the twelfth and fourteenth centuries, when it was in possession of the Genoese, who carried on a considerable commerce with India through Persia from this town. In 1474 it was taken from the Genoese by the Turks, and being no longer a considerable place, though its population had decreased from 80,000, which it is supposed to have had when the commerce of the Genoese was most flourishing, to 20,000 individuals. The wars which the Russians, in the latter half of the last century, carried on in these parts, ruined Kaffa, and still more the emigrations.
which took place when the Russians got possession of the town. Towards the end of the last century Pallas describes it as a heap of ruins, enclosed by strong and lofty walls, which were fortified by towers, at the distance of 20, 40, and 60 fathoms from each other. The space enclosed by these walls is about the height of men, and is an English mile in extent. Among its ruins Pallas observed a large mosque, which was then used as the chief guard-house. In this ruined state the town, whose population at present probably does not exceed 5000 souls, remains. The shops in the streets are small and narrow, and the houses are mostly built of mud bricks set up again by declaring it a free harbour, and by establishing a quarantine, an assurance company, a botanic garden, a museum of antiquities, which are frequently found in the neighbourhood, a library, &c.; but the effect of these efforts seems none too good. The town, however, is not yet large, and the population of about 14,198,286 rubles, not the imports 890,910 rubles, in paper money.

The fishing is the principal occupation of the inhabitants. In its neighbourhood are oysters. Caviar is raised, and a small quantity of tobacco. It exports a great quantity of salt.

(Pallas, Travels through the Southern Provinces of Russia; Jones's Travels in Norway, Sweden, Finnland, &c.; Lytta's Travels in Russia, the Crimea, &c.; Demosthenes, Lepita, c. 9; Strabo, vii. pp. 309, 311; Steph. Byzant. Geogr.)

KAHira, or CAIRO, more properly El Cchedireh, which was its former name, but now called by the natives Misr, the capital city of modern Egypt, is situated in 30° 42' N. lat. and 31° 20' E. long. It is the most remarkable of all the eastern banks of the Nile and the ridge of Mokattam, and near the apex of the Delta of the Nile. The tract of land between the town and the river, which is above a mile in width, is occupied by Kahira, the name of the town. Kahira, becomes narrower farther south, so as to be less than half a mile wide, in the direction of Misr el Attekhah, the southern harbour or landing-place. Kahira occupies about three square miles; it is surrounded by a wall, the gates of which are shut at night. Secretly, however, the houses which are built on one of the lower elevations of the contiguous ridge, in which is the residence of the Pacha. The streets of Kahira are unpaved, irregular, and narrow; they are more like lanes than streets. The great thoroughfare streets have generally a row of shops on each side. Above the shops are apartments which do not communicate with them, and which are inhabited by private families. Most of the bye-streets have a wooden gate at each end, closed at night, and guarded by a porter within, who opens it to persons who require admittance. There are also many courts with several narrow lanes branch out of them, but no thoroughfare, and only one common entrance, with a gate, which is also closed at night. The houses are mostly of wood, and are disposed from the height of the first floor with the soft calcareous stone of the neighbouring mountain. The superstructure, the front of which generally projects about two feet, is of burnt brick of a dull red colour, but often plastered. The roof is generally flat, but some of the upper floor apartments next the street have small wooden grates windows; but the windows of the upper apartments are mostly formed of turned wood lattice-work, which is so close that it shuts out much of the light and sun, but admits the air. In the better houses the windows are furnished with frames of glass in the inside, which are closed in the winter, for a penetrating cold is felt in Egypt when the thermometer is below 69°. The houses in general are two or three stories high, and have a large unpaved court, into which the principal apartments look. In the court is a well of slightly brackish water, which filters through the soil from the Nile; and on its most shaded side are commonly two water-jars, which are daily replenished with water of the Nile, brought from the river in skins.

There are in the town three or four squares or open places of considerable extent, two of which are overflowed during the summer, and which are named the Mokattam, and the Oulaka, and the third which lies on the right or upper side is called the Masbat. The town is also divided into 5000 streets, each of which has its name, public and private buildings, and numerous apartments. Among the other remarkable buildings are the public baths, of which there are between sixty and seventy in the town, several of them very spacious, handsomely ornamented and painted, externally and internally, the various apartments being paved with marble. The coffee-houses, which are very numerous, are extremely plain and unadorned. There are in Kahira numerous buildings called wekaikes, for the accommodation of merchants and their servants, and these buildings are square or oblong, having an open court in the middle, with vaulted warehouses for merchandise on the ground-floor opening into the court, and lodgings above them to the wekaike. The shops in the streets are small and narrow, and cells, about six or seven feet high and between four and six feet wide, in which there is just room enough for the seller and one or two customers. The public gardens consist of groves of orange and lemon trees and vines; and the stables to have horses and the town, are also frequently promenades.

The population of Kahira is reckoned at 240,000 inhabitants, of whom about 190,000 are native Mussulmans, 10,000 Jews, between 3000 and 4000 Jers, and the rest strangers from various countries. The police maintained in the metropolis is tolerably strict; punishments are arbitrary but lenient; convicted malefactors are mostly employed in the public works.

In the neighbourhood of Kahira are, Boulak, with the custom-house, the bazar, the printing-press, a school or college, some silk manufactories and about 18,000 inhabitants; Musr el Ateekah, where the town of Fostat, or Old Kahira, once stood, and where the vast granaries are now situated; the college of the church of St. George, whose gardens on the Pacha, Abo Zabel, where is a school of medicine, anatomy, and surgery, and a large military hospital, all created by the present Pacha Mehemet Ali. Nearly opposite to these, on the left bank of the Nile, are the great pyramids of Jezzeh.

Kahira still maintains the reputation of being the best school of Arabic literature; and for Mohammedan theology and jurisprudence the fame of its professors remains unequaled, but by few. Children are educated in the town of Kahira: almost every mosque has a kouttab, or day-school, attached to it, in which children are instructed in the Koran, and, if required, in writing and arithmetic. The schoolmasters are mostly persons of very little learning. Those youths who propose to devote themselves to religious employment or the learned professions pursue their studies in a great college attached to the mosque of El Azhar, which has a considerable library. Besides the study of grammar, rhetoric, and grammatical matters are given on logic, theology, the exposition of the Koran, and the traditions of the Prophet; on religious, moral, civil, and criminal law, which is chiefly founded on the Koran and the traditions; arithmetic and algebra, &c. The instruction is given generally to the number of 890,910 students, drawn from almost all parts of the Mohammedan world. The Azhar has lost the greater part of its revenues, the Pacha having seized the cultivable lands belonging to the mosques.

The professors subsist by teaching in private houses, copies of books, and other periodical and company vessels. Besides this college or university, there are, an elementary school of arts and sciences at Casr el Ain, a school of administration to instruct those who are designed for civil offices, and a school of artillery and engineering. The Arabic spoken by the middle and higher classes at Kahira, though inferior in grammatical correctness and pronunciation to that of the Beduins of Arabia, is much superior to that spoken in Syria, and still more to that of the inhabitants of Africa. The art of weaving, called the Manners and Customs of the Modern Egyptians:—Wilkinson, Minutoli; Planat, Histoire de la Régénération de l'Egypte. Paris, 1830.)

KAHAY. [Kahay. (V. M. the Monkey.) [Nasaliba.] KAKXENNE, a mineral occurring in small crystals, which appear to be six-sided prisms terminated by pyramids, disposed in radiating tufts. Colour yellow of several shades, and sometimes brownish-red. Lustre silky, sometimes vitreous. odour like amoniate; adheres to the tongue, and has an earthy smell.

When placed on a hot coal it emits a green phosphoric light, and before the blowpipe on charcoal decrepitates; with borax forms a deep green-coloured glass, and with soda a blackish mass.

It occurs in clayey brown iron-stone at Zbirow, in Bohemia.
KAL

**Analysis by Steueman**

- Phosphoric acid
- Potassium nitrate and water.
- Peroxide of iron
- Alumina
- Silica
- Lime

**KALERN**

A register or distribution of the year, accommodated to the uses of life; containing the order of days, weeks, months, festivals, &c. as they occur in the course of the year. It is so called from the kalendar, or Kalenda, which among the Romans denoted the first day of every month. The calendar, being of civil institution, varies according to the different distributions of time in different countries, which we shall here more particularly notice of are, the Roman, the Julian, the Gregorian, and the Reformé Calendar: a slight mention of the others will be sufficient.

Romulus, according to tradition, formed what is deemed the original Roman calendar, by which the year was divided into ten months only, consisting of an unequal number of days, and began with March. The total number of days was 304. It was however soon discovered that the civil year, as it was then called, was much shorter than the solar year. Romulus therefore added two intercalary months to every year; but these months were not inserted in the calendar, nor were any names assigned to them until the following reign. Some Roman antiquaries maintained that the calendar continued in use till the time of Trajan Quinarius Priscus.

Numa, in imitation of the Greeks, divided the year into twelve months, according to the course of the moon, consisting in all of 354 days; according to Pliny ('Hist. Nat. XXXIV. 7), he afterwards added one day more to make the number odd, which was thought a more fortunate number. But as ten days, five hours, forty-nine minutes (or rather forty-eight minutes fifty-eight seconds) were wanting to make the interval between the moon's rising and setting, he intercalated every other year an extraordinary month, called *Mesia intercalaria* or *Mordicus*, between the 23rd and 24th of February. This month appears to have consisted alternately of 22 and 23 days during periods of 25 years, the last bimonth in the 22 years being entirely passed over. The intercalation of this month was left to the discretion of the pontiffs, who, by inserting more or fewer days, used to make the current year longer or shorter, as was most convenient for themselves or their friends; for instance, that a magistrate might sooner or later resign his office, or contractors for the revenue have longer or shorter time to collect the taxes. In consequence of this licence the months were transposed from their proper seasons; the vernal equinox carried back into autumn, and the autumnal into summer. Some critics are of opinion that there is a reference to this confusion in one of Cicero's letters to his friend Titius (x. 17). It is asserted that he had made himself master of the state, resolved to put an end to this disorder, by abolishing the use of the intercalations; and for that purpose, n.e. 47, adjusted the year according to the course of the sun, and assigned to the months the number of days which they still contain. He also added an intercalary day to February every four years. [Bissextile.] To make everything proceed regularly, from the 1st of the ensuing January, he inserted in the current year, besides the intercalary month of 23 days which he had ordered to be inserted, two extraordinary months between November and December, the one of 33, the other of 34 days; so that this year, which was called the last year of confusion, consisted of fifteen months, or 443 days. ('Sueter, Vit. J. Cies, c. 40.) These 67 days were inserted in order to set the year right, which was 67 days in advance of the true time.

This was effected by the care and skill of Sosigenes, an astronomer of Alexandria, whom Caesar had brought to Rome for that purpose; and a new calendar was formed from it by Flavius, digested according to the order of the Roman festivals, and the old manner of computing the days by kalends, nones, and ides, which was published and authorized by the dictator's edict.

The Solar year continues in use to this day in all Christian countries, without any other variation than that of the old and new style, which was occasioned by a regulation of Pope Gregory XIII., a.d. 1582, who, observing that the vernal equinox, which at the time of the introduction of the Julian, a.d. 45, was on the 21st of March, then happened on the 10th, by the advice of astronomers caused ten days to be thrown out of the current year, between the 4th and 13th of October; and to make the civil year for the future to agree with the real one, or with the revolution of the sun, as it was then expressed, with the annual motion of the sun in the ecliptic, which is completed in 365 days, 5 hours, 49 minutes, he ordained that every 100th year should not be a leap-year except in leap-years of the 4th century, so that the difference will hardly amount to a day in 7000 years, or, according to a more accurate computation of the length of the year, to a day in 2200 years.

This alteration of the style was immediately adopted in all Christian countries; but not in Great Britain till the year 1752, when eleven days were dropped between the 2nd and 14th of September, so that this month contained only nineteen days; and thenceforth the new or reformed style was adopted, as it had been before in the countries of Europe. The same year an another alteration was made in England, by which the legal year, which before had begun on the 23rd of March, began upon the 1st of January; this alteration first took place on the 1st of January, 1752. It was resolved by Act of Parliament of the 9th and 10th of the 4th year of our Lord which shall happen in time to come, except only every fourth hundredth year of our Lord, whereof the year 2000 a.d. shall be the first, shall be considered neither as common nor leap-years, but shall be considered as common years, consisting of 365 days only; and that the years of our Lord 2000, 2400, 2800, and every fourth hundredth year of our Lord shall be leap-years, which shall be considered bissextile or leap-years, consisting of 366 days; and that whereas according to the rule then in use for calculation of the time, that this feast was fixed to the first Sunday after the first full moon next after the 21st of March; and if the full moon happens on a Sunday, then Easter-day is the Sunday after; which rule had been adopted by the general council of Nice; but that as the method of computing the full moons then used in the church of England, and according to which the table to find Easter prefixed to the book of Common Prayer is found, had become erroneous, it was enacted that the said method should be discontinued, and that from and after the 2nd of September, 1752, Easter-day and the other moveable and other feasts were henceforward to be reckoned according to the calendar tables and rules annexed to the act, and attached to the books of Common Prayer.

It is generally known that an effort was made to reform the calendar in England, as early as the reign of Queen Elizabeth. On the 16th of March, 1581, a.d. 1584-5, a bill was read the first time in the House of Lords, entitled, "An act giving Her Majesty authority to alter and make a Kalendar according to the rule and usages in other Countries." It was read a second time on the eighteenth of that month, after which no notice occurs of the proposed measure.

The formation of the Hebrew calendar is fixed by some to the same year as the council of Nice, a.d. 325: others have placed it in the year 360; and others as late as a.d. 800. Lindo however assures us that the Mishna compiled according to the Jewish account in the year a.d. 141 proves that the calendar as used by the Jews in its present state, with the intercalary month, was generally known and followed at that time. For further information upon the Jewish calendar the reader may consult Dr. Adam Clarke's Commentary upon the Bible and the Calendar.

**KALENDAR in use in the East:** the Arabian, which is common to all the Mohammedan countries; and the Persian, the use of which is peculiar to that country. This last is founded on the Persian era called 'Yezdegir.'

The dates are reckoned according to the 'Reformed or Revolutionary Calendar.' In September, 1793, the French nation resolved that the republique should form a new era, and that a calendar should be adopted on what were termed philosophical principles.

The year continues therefore decreed, on the 2nd of November, 1793, that the event of the revolution in all civil affairs, that the new French era should commi-
ence from the foundation of the republic, namely; on the third of September, 1792, on the day of the true autum
harm, when the sun entered Libra at 9h 18m 30s in the morning; according to the meridian of Paris; that each
should begin at the midnight of the Soviet, which the
French autumns, into what French the first year of the
French republic had begun on the midnight of the 22nd
September, and terminated on the midnight between the
1st and 2nd of September, 1793. To produce a corre-
spondence between the seasons and the civil year, it
was required, that the fourth year of the republic should be the
first sextile, or leap-year; that a sixth complementary day
should be added to it, and that it should terminate the first
souvenir; that the sextile or leap-year, which they called
a "Sextile," by which name the sun, as on the 13th Illus, the isles, from the verb intuere, to divide; be-
cause the isle nearly divided the month. The none, from
the ninth, were so called because, counting inclusively,
they were nine days from the isles. In March, May, and
October, the none fell on the 7th and the 15th of the month. The mode of fixing any particular day was by saying that it was so many days before the
middle none, or isles, next immediately following. Thus
the 28th of April was the 4th day before the isles of March;
the 4th of March was the 4th day before the none of March;
and the 9th of March was the 7th day before the isles of March.
The Attic year consisted of twelve lunar months of 30
days each, the month of March had 29 or 30 days, as was inserted every two years, but as this was 74 days,
so much, the intercalary month was sometimes omitted,
the full Attic month consisted of 30 days, and was divided
to three decades.
On the subject of the Greek Calendar the reader may
consult Ideeler, Handbuch der Mathematik und Technik.
Chronologie.
(Adam's Roman Antiquities; Niebuhr, On the Secular
Calendar, Hist. of Rome; Brady's Classic Calendar; Sir
Herbert Edgeley's Chronology of History; Hutton's Phi-
losophical and Mathematical Dictionary, v. Calendar; Lindo's
Greek Calendar, 8vo, Lond. 1838.)
KAL. [KALEND.] Kalendar. Kalender. Kalender is a
Allocate plant from the ashes
where the soda is obtained by lixiviation; and from the
name of this plant, with the Arabic article al, is derived
of a class of substances possessing peculiar properties.
Kal. Kal. was also formerly employed to designate the
lunar period.
KALMUCKS. [Calmucks.]
KALSEP. [Antelope, vol. ii, p. 83.]
KALUGA, a government of European Russia, lies be-
between 54° 30' W. lat. and 54° 24' E. long., on the right bank of the Dnieper.
KAM. [Kampen.] A town of the Netherlands, in the
province of Overijssel, in 52° 30' N. lat. and 5° 48' E. long., situated on the left bank of the IJssel, and
is 1,393,500; the face of the country is one unvarying level; here and there broken by a low hill or
the wooded bank of a river. In every direction there is a broad
basin, consisting partly of corn-fields, partly of meadows and common land, and it is only
enclosure or a group of woods interrupts the uniformity of this uninviting scene. The soil varies considerably, but
for the most part is clayey and sandy; in parts there is still clay.
Of the rivers, the principal are the Oka, a branch of the Volga, which is
navigable by barks all the year; the Uva, which flows into the government of Tula, but is here navigable by barks
only when the water is high; the Shisira, which falls into the Oka to the north; the Tula, which some places forms the boundary towards Smolensk, and
united with the Wora joins the Oka; the Ressata and the Tarusa, which flow into the Oka, and which, like, the Shisira
and Uga, are used only for floating rafts of timber. The
Bolva continues its course to Orel. According to Storch there are eleven, and according to Georgi five small lakes,
one of which, in the circle of Serpese, is five winters in length and one in breadth. There are marshes in some parts. The
rivers freeze about the end of November and thaw by the end of March. The soil, being on the whole indifferent, requires
much care and abundance of manure to make it yield four or five-fold; in general the produce is but two or three-fold;
common barley, which produces from five to eight-fold, is often mixed with rye. It is believed that the province produces enough for its own consumption.
Hemp and flax are staple products, affording a surplus
for exportation. Horticulture is carefully attended to;
the inhabitants of Kalgan possess, as well as many
their kitchen-gardens, which yield not only ordinary vege-
tables and potatoes, but abundance of hops and apples; finer
kinds of fruit and vegetables are confined to the gardens of
the rich. The forests, having been better managed than in
other provinces, yield plenty of timber for all pur-
pouses. Game and fish are not plentiful. The breeding
of cattle is merely subsidiary to agriculture, and the number of cattle is very small; the breeding of horses alone is attended to. The mineral products are bog-iron, stone for mill-stones, lime, gypsum, and turf; though no mines are
worked, there are several great iron-forges, where, besides
a little of their own bog-iron, ore from the other provinces is smelted.

The inhabitants are active, very temperate, and in easy
circumstances. The country-people, especially the women,
are much engaged in spinning and weaving; the men are
chiefly mechanics and shopkeepers; and many go for work
into other provinces. The brandy distilleries are very con-
venient; the manufactures of coarse wares, such as hemp cloth, calico, silk, velvet, ribbons, leather, paper, glass,
are important, considering the backward state of the country in general, and pretty large quantities are exported. Of
the natural products very little can be said in regard to
exportation. The inhabitants are all Russians of the Greek
church, under the bishop of Kalgan. The nobility are very
numerous.

KALUGA, the capital of the government, is situated in
54° 30' W. lat. and 54° 24' E. long., on the river Oka, which is here 200 yards wide. It is about six miles in circumference, surrounded with a rampart converted into a public
walk, has narrow crooked streets, and for the most part
wooden houses. There are some good buildings, such as the
magnificent eastern palace of the bishop, the episcopal
church; and there are 23 stone churches, an eccle-
siastical seminary, a convent of nuns, a gymnasium, several
schools, a theatre, a foundling hospital, &c. The manufac-
tories are considerable, and the export trade, with which
extends even to Danzig, Königsberg, Breslau, and Leipzig, is
to very active. The exports are canvas, paper, hair, leather, cot-
tons, and woollens; likewise hemp-seed, hemp, flax, linseed,
It has two churches, and a wooden bridge over the Yssel 723 feet long and 30 feet wide. The inhabitants amount to 8900: they manufacture great quantities of blankets, plush, and felt; and carry on a salmon-fishery on the Yssel. The trade, which formerly was considerable, has now declined, in consequence of the pest which has almost choked up with sand. The environs can be crossed under water.

KAMTCHATKA, a peninsula projecting from the northern parts of Asia into the Pacific, in a direction nearly due south, lies between 51° and 63° N. lat., and between 125° and 155° E. longitude. Its length is 1550 miles, and its width varies between 30 and 120 miles. Its area is stated to be about 86,000 square miles, or somewhat less than that of Great Britain.

It lies between the Cape Lopatka, a low and narrow tongue of land (51° N. lat.), which however widens as it proceeds northward, and gradually rises into mountains. The country south of 55° is covered with hills and mountains, which are rocky and barren, and only in some considerable valleys clothed with creeping cedar, and willow and stunted birch. At about 53° 5' N. lat. is a mountain-knot, whose issue two ranges, one running due north, and the other east-north. These ranges enclose the vale of the river Kamtchatka, which is deep and narrow, its height being nearly 200 feet. It declines afterwards north-north-east, and in that direction traverses the whole length of the peninsula, joining north of it the eastern branches of the Altan Mountains. It does not appear to contain high summits, and the elevation probably does not rise above the line of trees, which in this country is about 3000 feet above the sea. But the range running east of the river Kamtchatka is distinguished by several high summits, which are of volcanic origin, and most of them still active. The mountains are covered with trees, which grow to a considerable height. These volcanoes constitute the northern extremity of that extensive series which encloses the eastern coast of Asia, and traversing the islands of Japan and the Philippines, probably has a connection with the other series of volcanoes which traverse the islands of the Moluccas, and Molucca islands from east to west.

The mountains approach close to the eastern coast, which is composed of high rocks, rugged cliffs, and bold promontories, forming numerous inlets, the entrances to which are blocked up by reefs of rocks. The mountains are mostly covered with trees, which grow to a considerable height towards the south, but diminish in size as we advance northward. Numerous rocks are scattered in the sea at a distance of from one to three miles from the shore; some of them are accessible by a strait between them and a tower up to a considerable height. The depth of the sea varies considerably and suddenly from 30 to 90 fathoms and more. Earthquakes are frequent, and sometimes very violent.

The western shores along the Sea of Okhotak, or, as it is now frequently called, the Sea of Tarakai, north of the mountain-knot, are uniformly low and sandy to a distance of about 25 or 30 miles inland. They produce only willow, alder, and mountain-ash, with some scattered patches of stunted birch, and towards the north they are almost entirely overgrown with rein-deer moss. The sea is shallow to a considerable distance, and the soundings very regular. The small rivers which traverse this region have at their mouth not one foot at low water, with a considerable surf breaking on the sandy beach.

The best part of the peninsula is the vale of the Kamchatka river, which towards its southern extremity is 40 miles across, but grows narrower as it proceeds northward. Its length is 290 miles. Its soil is deep and rich, composed of a black earth, and exhibits a considerable degree of fertility.

Among the rivers, only the Kamchatka requires notice. It is a deep stream, and the mountain-dwelling runs in general in a northern direction through the vale, but at Nisnbei Kamchatka, where it approaches its northern extremity, it turns east, and empties itself into a large lagoon, but which is only eight feet deep at high water. The breaking of the waves is so violent when an easterly wind blows that it flows about 300 miles, and is the only navigable river in the peninsula.

The climate of Kamchatka, when compared with that of Europe under the same latitude, is very severe, but it is much milder than the eastern districts of Siberia. The frost sets in about the 10th of October, but up to the middle of December the thermometer commonly varies between 23° and 27° Fahr. During the following months it averages between 14° and 20°. In August the thermometer descends to 10° and 15°, and sometimes, though rarely, to 25°. On the sea-coast vegetation does not begin before the end of April, but in the vale of the Kamchatka, which is sheltered on all sides by mountains, it begins at the end of March. Rain is frequent, summer and winter, and the steam rises from the dead, or frozen, mud.

Agriculture was introduced more than 80 years ago. In some places on the western coast, but more extensively in the vale of the Kamchatka river, rice, barley, buckwheat, potatoes, and various vegetables are grown, but these articles are only cultivated by the Russian settlers. The number of horses and cattle is on the increase. The natives formerly lived chiefly on the produce of the chase, by hunting bears, wild sheep, or argalas, wild rein-deer, ermines, black, red and stone foxes, wolves, sea-otters, and fish otters; but since the number of these animals has considerably decreased, their time and industry are employed in fishing. In no part of the Kamchatka is fishing more lucrative than in the bay of Awatchanska, situated between 15° and 20° W., and its coast being the haunt of vast schools of toothed whales and white whales.

The forests, which cover the eastern chain, contain many fine timber-trees, which are little used, but might be employed in ship-building. These forests contain chiefly birch, chestnut, aspen, and mountain-ash. The mineral wealth is little known: in some places there are large calcarious rocks and sulphur in immense beds is found in the vicinity of the volcanoes.

Two native tribes inhabit the peninsula, the Kamtchadalas and the Korikas, the former occupying the coast as far as 56° N. lat. The Korikas wander through the country north of that of the Kamtchadalas. It is not certain whether both tribes belong to the same race of men, but the difference in their features is not great. The Korikas are short, but stout, and bread in the shoulders. Their head is large, their face flat and broad, their cheek-bones are prominent, their lips thin and their nose flattened. Their hair is black, hard, and lank, their eyes are of medium size, and their teeth. They evidently belong to the Mongol race. The Korikas are distinguished from them by the smallness of their head. Both nations differ in language and in mode of life. The Kamtchadalas are hunters and fishermen, have fixed habitations, and employ only those dogs to draw the skins.

The Korikas are a wandering tribe, subsisting on the produce of their numerous hards of rein-deer, of which the richer among them frequently possess several thousand, and their sledge are drawn by these animals. This last-mentioned tribe is scattered in a considerable part of the country between the Sea of Okhotak and the Polar Sea.

The whole population of the peninsula is stated not to exceed 5000 souls, but it seems that the wandering Korikas are not taken into this estimate. The number of Russian settlers and their descendants is at present about 100. In some parts there are a few Cossacks included. The remainder are Kamtchadalas.

The principal place is now Petropavlovski, built on an extensive bay (Awatcha Bay), with about 600 inhabitants. The Russian settlement was formerly the residence of the governor, hardly contains more than 100 inhabitants. Bolotbersk has a small harbour on the western coast, and about 200 inhabitants.

The commerce of Kamtchatka is considerable. It is particularly active with the natives of several adjacent settlements, and imports several articles of food, especially flour, and of luxury, as whiskey, &c. But during the last century it acquired a greater importance by becoming the depot for the largest American Company sent vessels to the north-west coast of America for the purpose of procuring furs and skins of several wild animals, which pass from Kamtchak to Okhtobat and thence to Kiachta. Since the
The establishment of peace in Europe, and the restoration of the isle of Java, the Dutch have begun to send every year considerable quantities of Indian rice, sugar, coffee, tea, rum, brandy, sugar, coffee, etc., and these goods pass hence to the eastern districts of Siberia.

Kamchatka is a Russian province annexed to the government of Eastern Siberia, or that of Irkutsk.

(Cook's Third Voyage, A Voyage to the North Pacific Ocean, etc.)

KANT'S DEPART. [AFGHANISTAN.]

KANGAROO, KANGOOROO, or KANGOOROO.

KANT, IMMANUEL, the author of the 'Critical Philosophy,' and distinguished as well for the profundity of his system of speculative philosophy, as for the extent of his philosophical investigations. He observes that the notion of a cause so manifestly implies the necessity of its being connected with some effect, and enforces so strongly the universality of this law, that it is totally inconsistent with those instances in which effect is followed by means of an antecedent. The next point which Kant notices in the 'Introduction to Critic of the Pure Reason,' as of great importance for the right appreciation of his philosophical system, is the distinction between analytical and synthetical judgments. The former are those in which the predicate is connected with the subject by identity; the latter are devoid of all identity of the subject and predicate. Analytical judgments may be also termed explanatory, the synthetical or a posteriori judgments, and it is of an effect to form the predicate adds nothing to the notion of the subject, and only resolves the notion which forms the subject into its constituent and subordinate notions, which however involved are really contained in it, whereas in the latter a new element is added by the predicate to those already contained in the subject, which was not previously understood in it, and therefore would not result from it by any analysis. For instance, the proposition that all bodies are extended is analytical; but the proposition that all |be means heavy is synthetic. The conclusions of experience are synthetical. Experience proves the possibility of the synthesis of the predicate 'heavy,' with the subject 'body;' for these two notions, although neither is contained in the other, are nevertheless parts of a whole, and which is represented by the analytical combination of its intuitions (anschauungen), although they only belong to each other contingently.

This contingent bond of union however is wholly wanting in synthetic judgments a priori. For instance, in the position, 'whatever happens has a cause,' the notion of a cause is not contained in the subject 'whatever happens,' and it indicates something very different from it. How then, and by what means, are we enabled to say of 'whatever happens' that it is different from 'whatever happens has a cause,' although not contained in it, as necessarily belonging to it? What is that unknown principle (=X) on which the understanding relies, when of the subject A it finds a foreign predicate B, and believes itself justified in asserting their necessary connexion? It cannot be experience, since in the above proposition the conception of a cause is attached to the subject, not merely generally, but universally and necessarily. Now all speculative a priori knowledge ultimately rests upon such synthetic or synthetical judgments; for though the analytical are highly important and requisite for science, still their importance is mainly derived from their being indispensable to a wide and legitimate synthesis, whereby alone are we justified in asserting their necessary connexion? The proper problem therefore of the pure reason is contained in the question—how are synthetic judgments a priori possible?

With a view to resolve this problem of the pure reason Kant begins with the symbolic disquisition of the elements of knowledge (transcendental elementarche). By transcendental he understood original or primary, or whatever is determined a priori in reference not only to human cognition but also to man's collective activity, and which consequently is the basis of the empirical, or that which is determined a posteriori. In short, all pure knowledge makes up the transcendental philosophy, and on it rest the authority and possibility of cognition. The elementarche is the transcendental logic. In the former Kant investigates the a priori elements of the lowest cognitive faculty— sensation; in the latter, those of the understanding and of the reason. In the aesthetic he shows that the sensuous faculty receives the matter of its intuitions or objects of sense without by means of certain affections or excitations of the sense, whereas the forms according to or by means of which this matter is shaped into representations or concepts of objects are determined by the faculty itself. These forms are the pure intuitions of space and time, because in them nothing else is intuitively viewed than the unity of that which is multiple either in succession or in co-existency. On this account he calls time and space the subjective forms of intuition a priori, by a subjective view by the name of phenomena. Of the ground of these phenomena, or, as Kant termed it, the thing in and by
interaction, its outcome is left uncertain. Kant attributes to phenomena themselves a certain objectivity or reality, on the ground that from their constancy and regularity they cannot be a mere semblance or illusion of the senses. On this view, however, there has been a transgression of idealism, as being in no sense inconsistent with that system of empirical realism which by our conduct in life we practically maintain.

Transcendental logic is divided into analytic and dialectic, of which the former is the critic, or investigation of the understanding, as the faculty of notions; the latter, of the reason, as the faculty of ideas. In the analytic we are taught that it is only when objects have been conceived by the understanding—i.e., are intelligible to it—that they can become an object of knowledge. The operations of the understanding are confined to analysis and synthesis, where however every analysis presupposes a synthesis. A combination of the multiple into unity constitutes a notion (Begriff), and the understanding is therefore the faculty of notions.

The law of the forms of these notions, irrespective of their contents, is investigated by logic in general, whereas the investigation of these notions in reference to their contents is the proper office of transcendental logic. Notions are either pure or empirical: the former indicating merely the nature and the manner of their combination; the latter, the multiple matter presented by experience. Both are equally necessary to knowledge, for the pure notion is an empty thing, objective in presentation; the latter with the form the Understanding is blind (Kritik d. rein. Vern., p. 55). As sensation only receives matter upon the affection of the senses, it is a mere receptivity, whereas the understanding, which subordinates the sensible to the intelligible, is a spontaneous faculty. The consciousness of the individual in this multiplicity is effected by the imagination, which combines them into a whole; whereas the unity, by which the multiplicity, as sensuously perceived, is recognized as an object, is a work of the understanding. Now this understanding constitutes the form of the notion, which therefore is the peculiar creation of the understanding. As these forms are different, a complete enumeration of them conformable to some stable principle is impossible. The understanding itself, however, discovers its laws of knowledge by the understanding. Now all the primary modes of the operations of the understanding, whereby objective unity is imparted to the perceived matter, may be reduced to one of these four: quantity, quality, relation, and modality. These, with their subordinates, Kant denominates categories after Aristotle, as determining in and by themselves what in general and antecedently (a priori) may be predicated of objects.

The three categories of quantity are unity, multitude, and totality; those of quality, reality, negation, and limitation. Those of relation are double and are paired together, as substance and accident, cause and effect, action and re-action. Lastly, the subordinates of modality are possibility, existence, and necessity.

The process by which these 12 categories, or pure notions of the understanding, are combined with space and time, the pure intuitions of sensation, and thereby presented to knowledge in their possible application to the objects of sense, Kant calls schematization (Schematisierung). For instance, the notion of substance is said to be schematized, when it is not conceived of absolutely as a self-subsisting thing, but as one which persists in time, and therefore as a constant and independent category of certain non-sensible terminations. Notions thus rendered sensible are called schematised, in opposition to the pure categories. In this process the imagination co-operates with the understanding, and its action is original and necessary, since its activity is inseparably bound up with the primary images of space and time. Out of this schematism of notions and the judgments which arise from their combination, the grand principles which regulate the operations of the understanding arise in a manner either empirical or intellectual. The grand principle of the former in which identity affords the connexion between the subject and the predicate, is the principle of contradiction. The mere absence of contradiction is not sufficient to legitimate the conception or designation, sensation may exist, and the synthesis of notions which is not grounded in objects, notwithstanding that it is not inconsistent to conceive. In synthetic judgments, on the other hand, we go beyond the notion which forms the subject, and we ascribe to it a predicate, the connexion of which with the subject does not appear immediately from the judgment itself. The possibility of this synthesis implies a medium on which it may rest, and this is the unity of the synthesis in truth a priori.

The following is the ultimate principle of synthesis—All objects are subject to the necessary conditions of the synthetic unity of the multiple objects of intuition in a possible experience. As this unity is established a posteriori, a table of categories, there must be as many pure synthetic principles as categories, and the different characters of their application must depend upon the different characters of the latter. These are either mathematical, and relate to the possibility of intuition, or dynamical, relating to the possibility of knowledge. The rules of the understanding are, relatively to their use, either mathematical or dynamical. The former are unconditionally necessary, since the possibility of intuition depends upon them; the latter only conditionally necessary. For, so far as concerns the existence of objects, for a possible experience is contingent, they imply the condition of empirical thought, notwithstanding that in their application to it they invariably maintain their a priori necessity.

By these principles of the pure understanding the possibility of mathematics and of a pure science of nature may be fully and satisfactorily explained. The matter of mathematics is the multiple object of space and time, which are under the forms of a priori intuitions. This matter is elaborated by the understanding according to the rules of logic, and as the phenomena must be in accordance with the conditions of space and time, or the forms under which the phenomena are to be intuitively viewed, i.e., the relations of space and time must be discovered a posteriori. The possibility of mathematics therefore rests simply or this, that objects cannot be conceived of except in space and time, from which however it follows at the same time that the phenomenon of any other object beyond the sphere of sensible phenomena. The pure science of nature likewise cannot have any other object than the system of a priori laws. It is only under the forms of sensation that individual objects can be intuitively viewed, and their mutual relations and the system of categories arising out of the forms of the understanding. If then the system of phenomena are to be an object of knowledge, they must correspond to the pure synthetic principles of the understanding, and it is only by these a priori laws that a science of nature is possible. But the phenomena of the pure science of nature do not admit of being applied beyond the domain of experience.

The important result of the transcendental logic is that the understanding and the understanding only is legitimately referred to in reference to experience, and that consequently the understanding is empirical, and not transcendental. It would be the latter if it could apply itself to objects not as phenomena merely, but as things absolutely. But such a possibility of understanding knowledge, as a relation of the objective matter of a notion, or Begriff, is given by intuition alone, and it is only by means of the empirical that the pure intuition itself comes to the object of which it is the form. These forms are simply representations of the object according as it is conceived in them. To the universality of an object under a category, a schema, 'time', is indispensable, and, apart from all sensation, this schema itself does not subsist; and the subsumption, or arrangement of an object under the categories, is impossible. There may undoubtedly be a logical use of the categories beyond the domain of experience, but, notwithstanding that it has its ground in the nature of human reason, is either altogether ridiculous, or else involved in contradictions (antinomies) which the transcendental understanding cannot investigate.

But besides phenomena there are other objects presented to the understanding, by a non-sensuous intuition of which consequently it can take cognizance. These Kant calls phenomena of the understanding (phantome des Verstandes). The distinction between noumena and phenomena does not consist in the difference of the greater or less distinctness of their cognisability, but in a specific difference of the objects themselves. A noumenon is not the thing in and by itself, for the thing in and by itself is the object for knowledge when conceived of independently of all sensuous forms. Nevertheless as experience invariably refers back to something independent of and prior to sensation, the noumenon may be considered as an object which is presented to the under-
standing by an unassuming intuition. The general possibility of such a species of intuition is undeniable, notwithstanding its impossibility to be apprehended by man, whose knowledge is dependent on sensation. In a sense Kant applies the term of "noumenon" to the notion of God, and generally to all supersensible objects, which may be conceived of, but nevertheless cannot be an object of perception.

The criticism of the transcendental dialectic gives this result—that the ideas of the reason, as pure speculative ideas, are nothing more than simple conceptions, for which no corresponding object can be scientifically shown to exist. Accordingly, neither the existence of God, nor the possibility of the soul, nor the freedom of the will, can be demonstrated.

Nevertheless the reason is not merely a theoretical, but also a practical faculty, i.e., it gives the law and action. Now these laws present themselves with such unconditional application that they are categorical imperatives, that no rational man endued with self-esteem can refuse obedience to them; and, on the other hand, without the freedom of the will these laws would not be obeyed; and without God and the soul's immortality there would be no final cause or motive for human conduct, which must be placed in a state of felicity, agreeable to morality, provided by and to be obtained through God, in another and a better life. Consequently, God and the soul are practically necessary. In 1726 Kant brought these practical ideas to be both true and objectively legitimate, notwithstanding that he is compelled or required to admit them merely by a subjective ground—"the testimony of reason"—the only evidence the rational mind can obtain from its dictates. This Kant calls the postulate of the practical reason. The acceptance of this postulate as true and legitimate does not constitute a scientific certainty, or knowledge properly, which indeed does not exist for the supersensible, it is merely a belief. This faith, or belief, however, is thus distinguished from every other, that it is a moral or practical faith, and consequently possesses for the believer all the certainty requisite for the guidance and conduct of life, and consequently it enjoys a subjective legitimacy.

The practical reason gives us our ideas of moral and religious truths and duties, but not of the existence of God, which is none other than a conscientious observance of all duties as divine commands, since God, as the moral law-giver, cannot be worthily honoured otherwise than by obedience to the laws of morality.

Lastly, the critic of the faculty of the judgment (Urtheilskraft) investigates its operations from an aesthetic or teleological point of view. The totality of objects which constitute nature are in harmony with man's faculty of judgment, or in a very harmonious cooperation with the faculties of imagination or teleologically; it possesses as it were two natures, one aesthetic and one teleological. The former is the point of view under which it appears to man; the latter consists in its formal or material concordance with the general harmony of his consciousness, and of the mind's wants resulting from its dictates. In the same manner the judgment is of two kinds. It may refer either to man's mode of conceiving and apprehending objects, and to the degree of pleasure with which the perceptions of them are accompanied; or it may consider the harmonious co-ordination of all things and their subordination to a general end, i.e., the objective harmony of nature. The beautiful, the agreeable, and the useful are the forms of our aesthetic judgments, and the perceptions of them are accompanied with pleasure. Nevertheless they affect us as well as a mode of enjoyment, such the beautiful occasions is of all the most complete. The beautiful is the noblest and most elevated of all the forms of aesthetic judgments. It exists in us antecedently to and independently of all experience. It is inherent in the constitution of our nature (Sinngefühl). Our judgments of objects are as necessarily respective of the beautiful as the practical reason is of the just and the good.

The knowledge of nature is only possible on these two conditions, that there are certain relations subsisting between the system of nature and the human mind; and that harmony reigns throughout the system of natural objects, and the necessary subordination of each separately to some general end. Considered in this light, organic living is the most excellent production of nature. The ex-
of the most eminent writers that Russia has yet produced, and the one to whom its literature is mainly indebted for the popularity it has acquired, and the rapid progress it has made since the commencement of the present century, was born in the government of Simbirsk, December 1st, 1765. Having completed his education at Moscow, he served a commission in the Guards, and in 1789-91 visited Germany, Switzerland, Italy, France, and England, which tour he has described in his 'Letters of a Travelling Russian,' of which an English translation, or a copy of the German one. On his return to Moscow he devoted himself entirely to literature, one of his first undertakings being the 'Moscow Journal,' which was succeeded by 'Agiaia,' the 'Pantheon,' and the 'Vestnik Evropam,' or European Messenger. KARAMZIN, was born at Moorfields, London, in the year 1796. He received a classical education at Einfeld, under Mr. Clarke, and was afterwards apprenticed to a surgeon. Mr. Clarke introduced him to Mr. Leigh Hunt, who is said to have introduced him to public notice. In 1817 he published a volume containing his juvenile poems, and shortly afterwards his long poem 'Endymion,' which called forth a violent attack from the 'Quarterly Review.' Keats was of a remarkably sensitive disposition: his constitution was weak, and greatly impaired by the attentions which he bestowed on a delicate beauty. His work has been immense, yet never was historian more liberally repaid; by the enthusiasm with which his work was instantly received. Its sale and popularity were unprecedented; it was to be seen everywhere, in the hut of the peasant and the palace of the noble; and no wonder, for in spite of all the imperfections that the utmost rigour of criticism has been able to allege against it, it is most captivating and interesting to all who are capable of perusing it in the original, whether foreigners or natives. It has been translated into German and French, but with that degree of fidelity or ability we are unable to state. The first edition, comprising the first eight volumes (1816), produced him the sum of 100,000 rubles, also the title of counsellor of state, and the order of St. Anna, which were bestowed on him by the emperor Alexander.

After his death the twelfth volume, then nearly prepared in manuscript (bringing the history down to 1611, was edited by M. Bludov, minister of the interior. Since then a continuous edition of the work has been undertaken. KARPHOSIDERITE, a mineral which occurs in minute crystals and in stellated silky fibres. Scratches fluor spar, and is scratched by felspar; colour wax or straw yellow. Locute of the crystals vitreous; of the fibres silky. Specific gravity 3.

Before the blowpipe on charcoal fuses into a dark glass, which becomes darker in the interior flame. With borax it melts into a transparent glass, which in the exterior flame has a manganese colour, and in the interior becomes greenish.

Analysis by...

<table>
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<th>Substance</th>
<th>Sillica</th>
<th>Alumina</th>
<th>Oxide of manganese</th>
<th>Oxide of iron</th>
<th>Fluoric acid</th>
<th>Water</th>
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KEA

"KARPHOSIDERITE, hydrous phosphate of iron, occurs in reniform masses. Structure granular, compact; fracture uneven; hardness 4.0 to 4.5; specific gravity 2.5; colour pale and bright straw yellow, and streak the same; lustrous resinous; feels greasy; opaque; when heated in a melter gives off water, and a vapour which reddens limbus paper.

Before the blowpipe, per se, it becomes black, and melts into a globule which obeys the magnet; with salt of phosphorus it forms a black scorbut. It is found at Labrador.

To recover his health, Keats travelled to Rome, where he died on the 24th of February, 1821, having previously published a third volume of poems, containing 'Lamia,' 'Isabella,' 'The Eve of St. Agnes,' and 'Hyperion.'

The poetry of Keats is of a passionately rich and luxuriant character, and his writings so crowded with images, that it at last becomes almost fatiguing to apprehend them. It seems as if his imagination were of that volatile nature which must start off to every idea associated with his sublime, and give it as a part of the whole. Hence the reader must put himself in the place of the poet, and allow his own imagination to fly from thought to thought, or the work will seem but a compound of wild unconnected pictures. The article in the 'Quarterly' observed, that he introduced many images meretricious and dandy, and this remark is not wholly unjust. He did not however, like many poets, merely write some common-place epistle or sentence for the sake of rhyme; but it seems as if his imagination strained to fertile, that a chiming word brought with it a new image suitable to his purpose and purposeful. He had thought that time would have matured his judgment and have improved him, but this is doubtful; the wild transition from thought to thought is the essence of his poetry, and not a dull toil of thinking and a cool inwrought into the spirit; the connection of his images would rather have injured him as a poet than have been of advantage.

To elucidate the above remarks, a passage is selected by way of example:—

"He, the magic sleep—oh, I comfortable bird! This brooding o'er the moon sea of the mind, will it be hush'd and smooth'd? Oh! I uncastess. Restrain'd I Imprest'd I'm liberal as a key. To golden palaces, strange ministers, fountain groves, new trees, bespangled seats, coach-grown groves, full of delight. And moonlight: eye, to all the many world, to all the many; and leave all the service enchanted!"

The poet begins by representing sleep under the figure of the brooding over the mind, and the idea of comfort associated with that of sleep, does not hesitate to give the bird the dubious epithet 'comfortable.' Then suddenly dropping sleep as an active power (the brooding bird), he takes it as a state, and finds the paradoxical expression, 'unconstrained restraint,' 'imprison'd liberty.' The word liberty gives rise to the question 'liberty for what?' The answer is, 'to roam in the world of dreams;' and the fertile imagination of Keats at once converts sleep into a bird which is to open the gate leading to that world. The above all, a full and complete specimen of the richness, and wealth of Keats's poetry, and the tendency of his mind to dart in all directions for images.

The article in the 'Quarterly,' dwelt too much on the
form of the poetry, and did not regard the beauty of many of the thoughts, but in the power displayed of giving a being and a presence to those broken imaginings. Hence most of the observations were just, but the poet was only regarded on his most unfavourable side.

Again Keats laid himself greatly open to ridicule; he evidently aimed to acquire a reputation for the words that he used were to him symbols of beautiful thoughts, but he forgot that the sound of certain expressions is ridiculous in society, however appropriate the conception belonging to such words may be. Thus he says something of the 4,5001. a sixpenny dram of beef through the brain of the image making him forget that an ordinary reader would necessarily smile at the word 'bob,' and this is one of numerous instances. Hence when the conventional rules of language are taken as the standard by which the beauty of the lines is measured, some of the lines of Keats's poems are, for this reason, unpleasant as form of some clear and connected subject, who prefer authors that rather anticipate their imagination than call it into violent action, Keats's poems will be of small value.

KELPER, LORD. [Lord Kelper.]

KELP, the ash remaining after the incineration of seaweed, which is burnt for the purpose of obtaining carbonate of soda from it. It contains but little of the alkaline salt, but it had suffered severe evaporation, and probably is sodiun carbonate. It was formerly much used in glass and soap making, and from the residue, after separating the carbonate of soda, large quantities of iodine are now obtained. [Sodium.]

Kemp, a collection imposed upon barilla imported from foreign countries, a considerable quantity of kelp was made on the coasts of Ireland and the western coasts and islands of Scotland, the inferior quality of the native production being more than compensated by its exemption from duty. The business of kelp-burning was long before carried on in Ireland, and about a century from the present time the manufacture was begun in Scotland, where, in consequence, the land in certain localities by the sea-shore became greatly advanced in value, very large annual revenues being derived from the manufacture which had hitherto been wholly unproductive. The adoption of a more liberal line of commercial policy in this country, and the advancement of chemical science, have caused the manufacture of soap and common bottle-kelp, for purposes of a better and cheaper kind, made from common salt (chloride of sodium), is now used, and the only purposes for which sea-wrack is at present collected are the manuring of land, and, in hard seasons, the feeding of cattle. Kelp having never been subject to the payment of duty, no record was ever taken of the quantity produced, which was at one time estimated to be more than 25,000 tons annually.

KEBLE, JOHN PHILIP, was born on the ist of February, 1757, at Prescot, in Lancashire. His father, Mr. Roger Keble, was manager of a provincial company performing in Staffordshire, Warwickshire, Gloucestershire, and Worcestershire. The managers had a monopoly of the theatrical rights, and it was not intended by his father for the stage, although during his childhood he was occasionally called upon to represent parts suitable to his age, the first upon record being that of the little Duke of York in Haverd's tragedy of 'Love and the Damned.' John Keble was not interested in his father's stage, although at the age of thirteen he returned to England and in the following year at the natural bent of his inclination towards the stage, made his appearance in the character of Theodosius in the tragedy of that name, at Wolverhampton, January 8th, 1776. Two years afterwards he was a regular member of the York Company. On Tuesday, 30th of September, 1773, Mr. Kemble made his first appearance in London at the Theatre Royal, Drury-lane, in the character of Hamlet. In 1799 he became manager of that theatre. In 1803 he purchased the shares of the Theatre Royal, Covent Garden, for Mr. Lewis, and became manager of that establishment, having previously made a tour through France and Spain. In 1808 Covent-garden was destroyed by fire, and on the 31st of December, at the ceremony of laying the foundation stone of the new theatre, Mr. John Keble was presented with 10,000l. munificently cancelled by his Grace the late Duke of Northumberland. On the opening of the new theatre in 1809, under Mr. Kemble's management, an attack in the prices of admission to the pit and boxes gave rise to the well-known O. P. riots, during which the great tragedian was personally and grossly insulted whenever he appeared upon the stage. A compromise was at length made between the manager and the public, and Mr. Kemble went to the best spirit of enterprise and liberality, reviving the plays of Shakespeare with great splendour and as much propriety as was at that time perhaps within his power. On the 33rd of June, 1817, he took his leave of the London audience, having given a farewell performance in the best spirit of enterprise and liberality, reviving the plays of Shakespeare with great splendour and as much propriety as was at that time perhaps within his power. On the 33rd of June, 1817, he took his leave of the London audience, having given a farewell performance in the best spirit of enterprise and liberality, reviving the plays of Shakespeare with great splendour and as much propriety as was at that time perhaps within his power. On the 33rd of June, 1817, he took his leave of the London audience, having given a farewell performance in the best spirit of enterprise and liberality, reviving the plays of Shakespeare with great splendour and as much propriety as was at that time perhaps within his power.
Thomas a Kempis composed some ascetic treatises, such as "Dialogus Novitiorum de Contemptu Mundi," etc., but they are very inferior to the book "De Imitatione Christi." He founded a college of his own, in the home of his monastery. He died in 1471, at ninety years of age.

KEMPEN (the ancient Campodunum), a town of Bavaria, in the old duchy of Swabia, and the modern circle of the Upper Danube, on the bank of the Iller, in 45° 44′ 40″ N., lat. and 10° 18′ 45″ E. long. It is built on the old-fashioned style, and consists of two parts, that called the Stift-stadt, or St. Hildegard, which is situated on a mountain, and is an open town, and the ancient-free imperial city, or the valley town, which has a castle. There are churches, a gymnasium, with a library and collection of works of art, an hospital, and an orphan asylum. There are manufactures of cotton and linen, and considerable trade in purs, wool, salt, linen, Italian and Dutch goods. The ancient streets follow the Stift-stadt in the town. The city was among the estates of the Empire, a high marshal to the emperor, was immediately under the pope, and possessed, with the district of Buchenberg, 326 square miles, 8 towns, 145 villages, with 43,000 inhabitants, and a revenue of 300 florins. The abbey and the town were assigned to Bavaria in 1802. The population of Kempten is about 7000.


Kennon, WHITE, born 1660, died 1728, distinguished as a divine, antiquarian writer, and prelate of the Church of England; a man, as his biographer says, of incredible decision and industry, especially in the affairs of state, but to the very last, the whole disposal of himself being to perpetual industry and service, his chiefest recreation being variety of employment.1 His published works are, according to his biographer's catalogue, in number fifteen, though including several single sermons and small tracts; but perhaps not a less striking proof of the indefatigable industry ascribed to him is to be seen in his manuscript collections, mostly in his own hand, now in the Lansdowne department of the British Museum Library of Manuscripts, where No. 955 to 1042 are all his, and most of them containing matter not incorporated in any of his printed works.

His course in life was this: he was the son of a Kentish clergyman, educated at Westminster and Oxford; had the living of Amersden early bestowed upon him, with a prebend in the church of Peterborough, but returned to Oxford, where he became vicar-general of Edmund Hall, the college to which Hearne belonged; resigned Amersden; settled in London as minister of St. Botolph's, Aldgate; was a popular preacher; made archdeacon of Huntingdon, dean of Peterborough, and finally, in 1718, bishop of Peterborough.

His principal published works are:—1. "Parochial Antiq- uities," a Letter to the History of Ambrose, Beverley, and other adjacent places in the counties of Oxford and Bucks,' 4to., 1695. This has been reprinted. In this work his very useful glossary is to be found. 2. The "Case of Improperities," &c., with an Appendix of Records and Memorials," 1704. 3. "A Register and Chronicle, Ecclesiastical and Civil," in two volumes folio, 1728; relating to the events of a few of the years of the reign of King Charles II. He also published a corrected edition of "The History of Gavelkind," by William Somer, to which he prefixed a life of that eminent Saxonist. Most of his other works were either sermons or controversial tracts, many of the latter being in ecclesiastical controversy, in which he was reckoned what is called a Low Churchman; and having, previously to the Revolution, taken the opposite side, he was often severely handled by the other party. In particular, a sermon which he preached at the funeral of the first duke of Devonshire was severely animadverted upon, as if he gave too much of the character of the deceased for the sincerity of a Christian divine.

There is an octavo volume, published in 1730, entitled "The Life of the Right Reverend Dr. White Kempene, late Lord Bishop of Peterborough," from which the above particulars are derived; and as it is not generally known, it may not be improper to state that the author was William Newton, rector of Wingham in Kent.

KENNICOTT, BENJAMIN, was born of humble parents, at Totnes in Devonshire, April 4th, 1718. Being appointed master of a charity-school in his native town, he continued in this situation till 1744, when several of his friends raised a sufficient sum of money to enable him to go to Oxford, where he lived, and took the degree of a Bachelor of Divinity himself with the greatest diligence to the study of divinity and Hebrew. While he was an undergraduate he published a work "On the Tree of Life in Paradise, and on the Obligations of Cain and Abel," which was so well received by the public that the university allowed him to take his degree before the usual time, without the payment of the customary fees. He was elected a Fellow of Exeter College shortly afterwards, and took his degree of M.A. in 1750. He con- tinued in the study of divinity and Hebrew. While he was an undergraduate he published a work "On the Tree of Life in Paradise, and on the Obligations of Cain and Abel," which was so well received by the public that the university allowed him to take his degree before the usual time, without the payment of the customary fees. He was elected a Fellow of Exeter College shortly afterwards, and took his degree of M.A. in 1750. He con-
The works of Kennicott and De Rossi are too bulky and expensive for general use. An edition of the Hebrew Bible, containing the most important of the various readings in Kennicott's and De Rossi's volumes, was published by De Rossi Professor, which is probably that of 1853; but the text is incorrectly printed, and the paper is exceedingly bad. A far more correct and elegant edition of the Hebrew Bible, which also contains the most important of Kennicott's and De Rossi's various readings, was published by John, Vienna, 1868, 4 vols., which may be recommended as the best critical edition of the Hebrew Bible.

Two scholarships were founded at Oxford by the widow of Dr. Kennicott for the promotion of the study of the Hebrew language.

KENT, a maritime county in the south-eastern corner of England. It is bounded on the north by the estuary of the river Thames, by which it is separated from the counties of Middlesex and Essex; on the east by the German Ocean and the Channel, which are dry at low water, and from which it is separated in part by the River Rother, in another part by the Teise, or Teise, a feeder of the Medway; and in the south-western corner of the county by Kent Water and other branches of the Medway; on the south by the counties of East and West Sussex, which are dry at low water, and from which it is separated in part by the Dungeness, Dymchurch, and Romney Marshes; and in the south-east, by the Channel and the eastern coast of the Isle of Sheppey. A detached portion of the parish of Woolwich in Kent lies on the north side of the Thames.

The form of the county is irregular. Its principal dimensions are as follows: length of the northern boundary, from the mouth of the Medway to the North Foreland, 64 miles; breadth of the same, 27 miles; breadth in a straight line; of the southern boundary, from the junction of the three counties, Kent, Surrey, and Sussex, to Denge Ness, or Dungeness, 48 miles; of the eastern boundary, of the North Foreland, 31; of the western boundary, from the neighbourhood of London to the junction of the above counties, 24 miles; length of a diagonal drawn from London to Denge Ness is 39 miles; and of one from the North Foreland to the junction of the above counties, 62 miles. The area is estimated at 1557 square statute miles; the population in 1831 was 1,129,155, giving 308 inhabitants to a square mile. In size it is the ninth of the English counties; in population the sixth; and in density of population the seventh. Maidstone, with Strood, is the chief town. It stands on the east of the Medway, 34 miles by the road by Eltham, Farningham, and Wrotham.

Coast-line, islands, &c.—The northern part of the county, along the coast, is a depth of the sea, and the northern part of England. The marshes extending inland from the Thames a distance varying from a few yards to a mile and a half or two miles. At the junction of the sea and the Medway these marshes are very extensive, and occupy a large portion of the land between these rivers, the extremity of which, being nearly or quite insulated by Yantlet Creek, forms what is termed the Isle of Grain.

Eastward of the Isle of Grain, the Swale, an arm of the sea, is the estuary of the Medway, cut off from the main land the Isle of Sheppey, of which the Isles of Elmley and Hayle are a part, bi portion, nearly severed from the rest by ditches or creeks. The northern side of the Isle of Sheppey is upland; the face toward the Thames is abrupt but not very lofty, the cliffs rising about ninety feet above the river. The length of the island from east to west is about 10 miles; its greatest breadth from north to south about 4 miles. It probably once extended farther on the north side, but the cliffs have long since been washed away by the waters of the estuary. The sands containing this island are divided near seven parishes; it comprehends the gentle but decayed borough of Queenborough, and the royal dockyard and town of Sheerness on its north-western point. The population of the island in 1831 was 9934. The largest ship that can come to the port is a four-decked bark laden with Appledore and pork, which is supplied with water and coal.
forms a line of hills, from the summit of which there is an extensive prospect. The North Downs are interrupted between the Stour and the Medway by the valley of the Darent. On the eastern side of the Medway, which completely intercepts the chalk range, the Downs rise again, and run to the east-south-east to the coast near Folkestone, still presenting their steepest slope to the south. This part of the chalk is divided into two parts by the valley of the Stour. On the north side the Downs gradually subside towards the estuary of the Thames. The coast line from Walmer to Folkestone shows a transverse section of this range.

The height of the chalk hills is considerable. Hollingbourne station, about midway between the valleys of the Medway and the Stour, is 616 feet above the level of the sea; Pad-

dleworth hill, about 4 miles north-west of Folkestone, is 642 feet; Folkestone hill, on the coast near Folkestone, is 575 feet; and Dover Castle hill is 469 feet. The cliffs near Dover are about 400 feet high. The cliffs of the Isle of Thanet are also of chalk; those about the North Fore-

land are about 300 feet high.

The district between the chalk range and the estuary of the Thames is, for the most part, occupied by the plastic clay which immediately overlies the chalk. The tongue of land between the Medway and the Stour, which is, including the Isle of Grain and the Isle of Sheppey, is formed of the London clay, which overlies the plastic clay. This formation also occupies a considerable district north and north-west of Canterbury, extending to the shore between Whitstable and Reculver, where (as well as in the Isle of Sheppey) it forms cliffs: those between Whitstable and Reculver are in some places 70 feet high. The London clay also covers a small tract near Pegwell Bay. The hills of Sheppey, which are of London clay, rise to the height of 250 feet. The hill near Woodhorn is an insu-

lated mass of London clay, is about 446 feet high.

In the valleys of the Darent and its feeder the Cray the strata above the chalk have been washed away, and the chalk is covered only by the vegetable soil. Another strip of chalk, dissected by the sixteenth strata, runs along the bank of the Thames from the valley of the Darent to below Gravesend.

South of the North Downs the chalk-marl and green sand is exposed, and cover a belt of the chalk throughout the whole extent of the county from west to east. The breadth of this belt varies from two miles to six or seven. Its southern slope, which is the steepest, forms what is designated the "roagsteone range" of hills, the higher parts of which, stretching from 600 to 800 feet on the north and over the valley watered by the Eden, the Medway (from Penshurst to Yalding), and the Beult. The thickness of the chalk marl averages 300 to 400 feet; that of the green sand we have no account.

The valley just referred to is occupied by the Weald clay, and forms another belt extending throughout the county from the border of Surrey to the edge of Romney Marsh, having an average breadth of five miles. The thickness of this formation may be estimated at about 300 feet.

The remaining portion of the county, which forms a narrow belt or strip of land along the Sussex border, is occupied by the iron-sand, which forms the nucleus of the great Weald district of the south-eastern part of England. This formation constitutes a range of hills, amid which the upper waters of the Medway and its tributary the Teise have their sources; and extends far into Sussex. It rises in some parts of the Weald clay district through the overlying strata of the formation.

The county throughout, when viewed with reference to its geology, to consist of five parallel belts, extending nearly in the direction of its length, and occupied by different formations, which succeed each other in regular order from north to south: the London and plastic clays; the chalk; the chalk marl and green sand; the Weald clay; the iron-sand. The southern border of the chalk and green-sand formations, and the iron-sand district, form three parallel ranges of hills separated from each other by the Homestead and Weald clay valleys, the former lying at the foot of the chalk hills, and the latter of the roagsteone o' green-sand hills.

What is termed the Weald (Saxon peal, forest, or perhaps generally, a wild uncultivated tract) was antiently an immense forest, inhabited only by deer and hogs. It has however been gradually cleared and brought into cul-

tivation. The iron-sand of this district was formerly much much used for brickmaking, for the furnaces and the forge; and the iron works were numerous and important. But the introduc-

tion of coal in the manufacture of iron has caused this branch of industry to be transferred to other parts of the land, and fuel is more abundant.

Beds of limestone occur in the green-sand formation, and are quarried near Maidstone for common purposes of building, for road-making, and for burning into lime, which is used for stucco, or exported to the West Indies for refining sugar.

Hydrography and Communications. — The northern boundary of the county is formed by the Thames, to the basin of which nearly the whole county belongs. This river affords to that side of the county a ready means of com-

munication with the metropolis, with other parts. The royal docks of Deptford and Woolwich are upon it.

The other principal rivers are the Ravensborne, the Darent, and the Medway, which flow into the estuary of the Thames; and the Stour, and the Rother, which flow into the Thames. 

The Ravensborne rises on Keston Common, near the border of Surrey, and flows northward past the town of Bromley and the village of Lewisham, and between the town of Gravesend and the village of Higham, and turns several mills, and supplies Greenwich and Deptford with water by means of waterworks. It is navigable for nearly a mile up to Deptford bridge for lighters and other small craft. The whole length of the Ravensborne is about 15 miles.

The Darent rises in Squires park, near Westerham, just under the North Downs, and close to the border of Surrey. Its course is first east-north-east, parallel to the course of the North Downs, to Riverhead near Sevenoaks, where it turns north-east, at Croxted, and then north-north-west, as far as Otford, Shoreham, Farningham, and other villages, to the town of Dartford, below which it is called Dartford Creek, and becoming navigable, flows through the marshes into the Thames. Its whole course is about twenty miles, for three of which it is navigable. Just before the Thames it receives the Cray, which rises near Orpington, and has a course of about nine miles. The Cray is said to produce the best trout of any stream in the neighbour-

hood.

The Medway rises in Sussex, near the northern border, between East Grinstead and Crawley, and flows eastward through that county into Kent, which it enters near Ashurst about five miles west of Tunbridge Wells. In this county it receives the upper waters of the Medway and receives the river Teise, which drains the higher districts of the Weald of Sussex. At Penshurst, in Kent, the Medway is joined by the Eden, one of its main branches, which rises about God-

stice, in Surrey, and receives the drainage of the valley that separates the green-sand hills from the central sand high lands of the Weald. The Eden is about sixteen miles long. The length of the Medway before it receives the Eden may be estimated at eighteen miles. From Penshurst, where the navigation of the river commences, it flows east-

north east-five miles to Tunbridge Wells, forming in its way two or three islands. From Tunbridge the Medway flows eight miles east by north to Yalding; in the Weald, near which it is joined by the Teise or Teisse and the Beult. The Teise rises in the northern part of Sussex, and flows by Lamber-

hurst and between Horam and Goudhurst into the Medi-

way. Its length is about seventeen miles. It sends off an arm which joins the Beult. This river rises in the Weald of Kent not far from the foot of the iron-sand hills, near Shadoxhurst, and flows upon a north-west twenty mile course, forming in its way two or three islands. The Medway and of its principal feeder the Beult to their junction is in the direction of the valley of the Weald clay, of which they receive the drainage, the Beult of the eastern, and the Medway of the western part. From Yalding the course of the northern part of Sussex, and flows by Lamber-

hurst and the western part northward; it passes through an opening in the green-

sand hills, across the prolongation of the valley of Holm-

dale by Maidstone and Aylesford, through a great open-

ning in the North Downs, and by Rochester and Chatham.
into the estuary of the Thames at Sheerness. Its length below Yalding is more than thirty miles, and its total length above sixty, for more than forty of which it is navigable. The tide flows up to Maidstone bridge, just above which it is now stopped by a lock; it previously flowed a mile above the town. Ships and large vessels, not ascended above Rochester bridge. Below Rochester the estuary gradually expands to a considerable width, and forms an important harbour for the British navy. Numerous arms of the river or creeks penetrate the marshes, which extend for a considerable extent from the banks of the river. The royal dockyard of Chatham is on the Medway, and that of Sheerness is at the junction of the Medway with the Thames. The Medway is plentifully stocked with salmon, and has been converted to some use. The usual flat-water fish; and below Rochester are soles, codfish, and other flat fish, and smelts of excellent quality and large size. In the creeks in the lower part of the river are considerable oyster-beds.

The length of the river is said to have been Vaga, but if a judgment may be formed from the name given by Nennius to the town of Maidstone, ‘Caer Meguaid’ or ‘Caer Megwad,’ the first syllable of the modern name was also part of the British name, and not (as supposed by some) attached to the name of a town mentioned in the Peutinger Table, and by Richard of Cirencester, supposed to be on this river, was ‘Ad Madum or Madis,’ which corroborates the notion that ‘Vaga’ or ‘Mad’ formed part of the British name.

The two branches, distinguished as the Greater and the Lesser Stour. The Greater Stour is formed by two streams, which flow along the valley between the North Downs and the green-sand hills in opposite directions. One of these streams runs east-southeast from near Lenham, the other from the south-east, not far from Hythe on the coast; they unite near Ashford, and, turning to the north-east, pass through a depression in the North Downs, and flow by Ype and Canterbury to the neighbourhood of Sarre in the Isle of Thanet. The Continent is a branch of one of which falls into the estuary of the Thames, near Reculver; the other falls into Pegwell Bay, below Sandwich. These two arms cut off Thanet from the rest of the county, and constitute it an island.

The Lesser Stour, which rises near Lyminge, about three miles North of Hythe, and flowing north-east by Barham, above which it sometimes becomes dry, turns north by west, and skirting Barham Down, flows to Bridge near Canterbury. Here it makes another bend, and runs north-east along the western side of the Stour creek, which falls into Pegwell Bay.

The two arms of the Stour, which insulate Thanet, were once a channel three or four miles wide, which received several streams besides the Greater and Lesser Stour. This navigable channel between the two branches of the Stour creek was diminished to three furlongs, and was usually passable at two places only, Sarre and Stonor, near Sandwich, where ferry boats were kept. The channel continued to be navigable for ships of tolerable burden in the reign of Edward III, and the arms of navigation with the waters of the northern branch having been distributed by means of bridges over the land, this arm from the Stour to Reculver became too small for navigation, and was for a period quite dry in the neighbourhood of Sarre, so that Thanet became a peninsula rather than an island. A cut from the Stour restored the continuity of the watercourse, but this north channel has never since been used for navigation. The Greater Stour enters Pegwell Bay after making a great bend, and the latter part is stunted. It is not navigable up to Fordwich, near Canterbury. The whole length of the river from Lenham to Pegwell Bay may be estimated at forty-five miles. Both the Greater and the Lesser Stour contain excellent trout; salmon trout, generally called the Bleak, is common in the Greater Stour, and a peculiar species called the Fordwich trout, which are rather larger.

The river Rother rises in Sussex, to which county it more properly belongs. [Sussex.] It first touches the border at the Kent, a small stream, which from near Junction the Rother flows by Newenden and Rotherham, below which it quits the border and re-enters Sussex. Several small streams from various parts, which unite with the Rother itself, enclose the river island of Oxney (six miles long from east to west, and three miles broad), the centre of which is occupied by the hills about Wittersham, Stone, and Rhyne Chapel, while the rest of the island (of which the greater part is in Kent) forms the continuation of Romney Marsh. The Rother is navigable in all that part which touches this county, which was antiently called the Limne once entered the sea at New Romney, but in the reign of Edward I., during a great inundation of the sea, it forsook its ancient channel and formed for itself a new one into the sea at Rye.

The principal town in the county of Kent is the Royal Military Canal, which was formed, rather for the purposes of defence than of commerce, during the alarm of invasion in the late war against Napoleon. It has however since become very important in the traffic of the south-eastern part of the county, and especially in the coal trade. The river Thames, as far as the Medway, has been made navigable for ships, and is very useful for transport. The principal communication with this town is by the railway from London to Ashford, Gravesend, Frinton, and Dover. The Dover road enters the county at New Cross, 33 miles from London, by a ascent of 200 feet. From New Cross, the road runs east-southeast to the Medway, and thence, improving towards the north-east to Chatham, 45 miles from London, and then north to Ashford, 42 miles from London. It then passes through Bexley, and crosses the Medway, thence through Dartford, 15 miles from London, and continues through Gravesend, 22 miles, Rochester and Chatham, 30 miles, Sittingbourne, 40 miles, and Canterbury, 52 miles, to Dover (71 miles). The principal communication between London and the Medway is by the railway from London to Bexley, thence off the Dover road at New Cross, and runs south-east through Eatham, Farningham, and Wrotham, to Maidstone (344 miles); and thence by Lenham (44 miles), Charing, and Ashford (53 miles), to Hythe (65 miles). The principal communication between the Medway and the Channel at Romney Marsh is by the road from the Hastings road, which branches off from the Hythe and Maidstone road more than a mile beyond New Cross, and diverging more towards the south, passes through Bromley, Seven Oaks (34 miles), and Tonbridge (39 miles); at Lamberhurst (40 miles) it crosses a projecting angle of Sussex, and finally quits Kent for Sussex near Fimwell (43 miles). The road travelled by the Hastings mail diverges from this road at Tonbridge, and passes through Tonbridge Wells (36 miles from London), the road to Rye branches off from the Hastings road at Tonbridge; and thence by Eatham, Farningham, and Wrotham, to Maidstone (344 miles); and thence by Lenham (44 miles), Charing, and Ashford (53 miles), to Hythe (65 miles). The principal communication from the Medway at Romney Marsh to Dover is by road, and thence off the Dover road at Canterbury, and branches from the Hastings road near Lamberhurst leads to Cranbrook and Tenterden, 30 miles, to Maidstone (344 miles); and thence by Lenham (44 miles), Charing, and Ashford (53 miles), to Hythe (65 miles). The principal communication between the Medway and the Channel at Romney Marsh is by the road from the Hastings road, which branches off from the Hythe and Maidstone road more than a mile beyond New Cross, and diverging more towards the south, passes through Bromley, Seven Oaks (34 miles), and Tonbridge (39 miles); at Lamberhurst (40 miles) it crosses a projecting angle of Sussex, and finally quits Kent for Sussex near Fimwell (43 miles). The road travelled by the Hastings mail diverges from this road at Tonbridge, and passes through Tonbridge Wells (36 miles from London), the road to Rye branches off from the Hastings road at Tonbridge; and thence by Eatham, Farningham, and Wrotham, to Maidstone (344 miles); and thence by Lenham (44 miles), Charing, and Ashford (53 miles), to Hythe (65 miles). The Hastings road branches off from the Hythe and Maidstone road more than a mile beyond New Cross, and diverging more towards the south, passes through Bromley, Seven Oaks (34 miles), and Tonbridge (39 miles); at Lamberhurst (40 miles) it crosses a projecting angle of Sussex, and finally quits Kent for Sussex near Fimwell (43 miles). The road travelled by the Hastings mail diverges from this road at Tonbridge, and passes through Tonbridge Wells (36 miles from London), the road to Rye branches off from the Hastings road at Tonbridge; and thence by Eatham, Farningham, and Wrotham, to Maidstone (344 miles); and thence by Lenham (44 miles), Charing, and Ashford (53 miles), to Hythe (65 miles). The Hastings road branches off from the Hythe and Maidstone road more than a mile beyond New Cross, and diverging more towards the south, passes through Bromley, Seven Oaks (34 miles), and Tonbridge (39 miles); at Lamberhurst (40 miles) it crosses a projecting angle of Sussex, and finally quits Kent for Sussex near Fimwell (43 miles). The road travelled by the Hastings mail diverges from this road at Tonbridge, and passes through Tonbridge Wells (36 miles from London), the road to Rye branches off from the Hastings road at Tonbridge; and thence by Eatham, Farningham, and Wrotham, to Maidstone (344 miles); and thence by Lenham (44 miles), Charing, and Ashford (53 miles), to Hythe (65 miles).

**Agriculture**—The climate of Kent is in general mild and genial, which is greatly to the advantage of the crops which grow in it, and exposes it to occasional north-east winds, which chill the air, but they carry off the superfluous moisture of the soil; and some of the most fertile spots are in the Isle of Thanet, which lies at its north-eastern extremity, and in the adjacent country called the Thanet. The soils along the Thames and Medway are of the same composition as in the Weald, and to New Romney near the sea. A ridge or hills composed of ragstone traverses the county from west to east, along which there are some very fertile clay, which, with moderate attention to the cultivation, are highly productive. The chalk hills, which extend to the north of these, rise into hills between Canterbury and Dover, where there are some extensive sheep-downs,
but from Canterbury towards London it is mostly covered by a stiff clay, and only breaks out here and there on the banks of the Thames. To the south of the ragged hills are the Wealds, which contain some very fertile soils, clays and woods, in which oaks grow to a great size. The soil in the Isle of Thanet is not naturally so fertile as the appearance of the crops might lead one to suppose. It consists mostly of a thin light soil; but it has been so long improved by careful cultivation and abundant manuring, chiefly with sea-weed, that it may now be considered one of the most fertile spots in Great Britain. The subsoil is everywhere a hard chalk, over which there is in some places a thin layer mixed with flinty pebbles, not exceeding six or eight inches in depth: in some of the hollows the soil is deeper and more loamy, and so dry as to allow of its being ploughed quite flat without any ridges or water-furrows. There is not an acre of waste land in all the Isle of Thanet.

Throughout the whole county the clay may be said to predominate, and the mode of cultivation generally adopted is that which suits the strongest soils. The Kentish farmers and yeomen, though generally rich and independent, are not very ready to introduce improvements in the system by which their forefathers were enriched; and although a great quantity of corn is annually raised in the county, and contributes a great portion of the supply of the London market, it cannot be denied that this produce might be greatly increased, and raised at a less expense than it is now, by adopting improvements in the tillage of the land and the implements in use. An old Kentish farmer may perhaps smile at this assertion, and, looking at his fine fields of wheat and beans, defy any one to cultivate the land better. This is the very reason why improvements which have been introduced in less productive districts have made little or no progress in this county. In the year 1793, Mr. John Boys, who drew up the general view of the county of Kent, being himself a Kentish farmer, mentioned the heavy turn-wrist plough, used almost universally throughout Kent, as 'drawn by four horses on the lightest soils, and with six on all the stiffest;' and at this day, nearly half a century later, the old heavy turn-wrist plough is still used with four horses in soils where a good plough of an improved form would readily do the same work with two.

The Kentish turn-wrist plough consists of a beam ten feet long, five inches deep, and four broad, behind which is a foot five inches by three and a half, and three and a half feet long, on the top of which the handles are fixed. Through the beam, at two feet five inches from the foot, is a sheath of oak seven inches wide, and one and a half thick, which is morticed into the cheek in an oblique direction, so that the point of the share is twenty-two inches distant from the cheek. The cheek, to which the share is fixed, is five feet long, four inches wide, and five inches deep. The share is of hardened iron, weighs about 32 lbs., is twenty inches long, and from four and a half to seven inches wide at the point. The upper end of the beam rests on a carriage with two wheels three feet two inches high; on the axle-tree is a gallows, on which is a sliding bolster to let it up and down. Through the centre of the axle is a clasp-iron, to which is fixed a strong chain called a tow. This comes over the beam, and, by lengthening it, the beam is let out a greater length from the axle, and thus the

nor doubt the necessity of its being drawn by four horses in some very stiff clays; but it might be greatly improved, and the draught diminished, so much as to make four by any means, which are retentive of water, it is always advantageous to lay the land in stitches with deep water-furrows between them; and for this purpose the Suffolk or the Scotch ploughs with a fixed turn-furrow are much preferred than the turn-wrist. London two to five

On the soils in the Isle of Thanet, where wheat and beans are raised alternately without fallow or intermission, the practice is good, and, if effected at a moderate expense, is not to be found fault with. The ground is well stirred and manured every year, for the benefit of both crops, and by wide furrows and, repeatedly horse-hoed till the crop is too far advanced to admit of it. The returns cannot fail to be good. The bean stubble is cleared of the stems and roots of the beans by a plough with a very broad share, which effects a perfect hoed, and leaves the land very clean. A deep ploughing is then given for the wheat. We cannot suggest any improvement in this practice, unless it be in the economy of the labour. But such soils are very scarce, and much of the good lands and horses must be cultivated with a greater variety of crops. There is room here for improvement, both in the rotations and in the manner in which each crop is raised; and the Kentish farmer might find it profitable to adopt some of the methods used in the northern counties, which contain all the requisite soils and situations not so well adapted to them as many parts of Kent are. A journey through the counties of Norfolk and Suffolk would give the young Kentish farmer some useful hints, and would remove some prejudices which now impede his progress.

Besides the usual crops which are raised on good clays, Kent produces several which are peculiar to it, such as canary and radish seed, which grow chiefly in the Isle of Thanet, where there are few hedgerows to harbour birds, which are very destructive to food crops. The canary seed is cut in September, and is left for some time in the field until it is fit to be threshed; for the seed adheres so strongly to the husk that it requires the influence of rain and heat to separate it from the husk. The texture of the envelopment is the same, and it suffers very little from this exposure. The produce is from three to five quarters per acre, and is chiefly used to feed birds kept in cages, and for this purpose is largely exported. The oil is very good for horses. Radish seed is also cultivated in the richer soils for the London seedsmen. It is sown in drills and carefully hoed, so as to leave the plants eighteen inches asunder. The pods, when ripe, are not cut off so long in the field before the seed can be threshed out. The produce is for four bushels per acre. The demand for this seed is very great: every garden, however small, has a bed of radishes, and few gardeners think it worth while to save the seed.

Other seeds which are also grown for the London seedsmen, such as spinach, cresses, and white mustard. Kidney beans are cultivated to a considerable amount in the neighbourhood of Sandwich, and produce from ten to twenty bushels per acre.

Woad and madder were formerly more commonly cultivated in Kent than they are now; the foreign, being raised at a less expense, have driven the Kentish out of the market. With a greater attention to the management of these valuable crops, they might probably still be raised advantageously; but everything that is done on the land in Kent is done in a more expensive manner than in many other countries; a great proof of the easy circumstances of the farmers and landowners there.

Consequently a very small proportion of grass land in Kent, if we except the slop downs on the chalk hills and the marshes. The marshes produce most of the hay consumed in winter. Romney Marsh, which is well known for the richness of its grass, contains about 44,000 acres; these are divided into 200 lots, the borders of the fields are marked; and along the Medway, Thames, and Swale, about 11,500 acres.

A great many sheep are reared and fattened in these marshes. The cattle fed there are only a secondary consideration, sheep being found more profitable. The quantity of sheep which the land will support is limited to about 50 per acre; sometimes the grass grows faster than the flock can consume, and becomes too rank, a circumstance which is owing to want of attention in stocking, and is detrimental. Lean cattle are then taken in to eat close.
but a careful farmer never allows his marshes to be either over or under stocked, and keeps the grass close fed and yet abundant. The hay made in the marshes is often stacked in haymows near some shed, where the stack may be supplied in winter.

There are very few dairies of any consequence in Kent, nor is any cheese made, except for domestic consumption.

Hops are grown to a very great extent in this county; and, with the exception of those which are raised at Farningham in Surrey, are the most esteemed of any in England.

Hops.

In that part of Kent which is nearest to London there are many extensive gardens; and about Deptford hundreds of acres are laid out in asparagus beds. Great quantities of peas are also raised for the London market on the line of road from London to Rochester. Apples, pears, plums, and cherries are raised in orchards, and the produce sent to the London market. Cider is also made in considerable quantities. In some places hops, apples, cherries, and filberts may be seen growing together in the same grounds; the proportion is 3 hop hills, 200 filberts, and 40 apple or pear trees per acre. The hops last twelve years, the filberts thirty; after which the apples and pears require the whole ground. This is a very good arrangement, by which the land is constantly producing.

The cultivation of the filberts is peculiar to Kent, and very well managed there, especially in the neighbourhood of Maidstone. They do not require a very rich soil, but grow well in that which is rocky and gravelly. The ground is kept clean around the trees, which stand about 12 feet apart, the twigs being trained up in banks which are left to branch out a few inches above the ground; the branches are trained and pruned in the shape of a punch, and are not allowed to run above 4 or 3 feet high: as they will bear abundantly, and be very profitable. When the filberts are gathered they are laid dry in the barn or under a shed exposed to the air. If they are well dried, they will keep good for several years.

There are still some extensive woods in Kent, but they are now rapidly getting thinner and thinner. Kent is a large county, and timber is much reduced from what it formerly was. The wood for hop-poles has caused more attention to be paid to the underwood; and some of the coppices, which are well managed, have given a sufficient return to prevent their being grubbed up and converted into arable land.

On a general review of the agriculture of this county, it may be observed, that notwithstanding its present productive state, and the natural fertility of many parts, it is capable of very great improvement, and that by a little attention, and by urging the farmer to place more emphasis where it is required, and especially by a more economical application of agricultural labour, both in men and horses, its produce might be greatly increased, and raised at much smaller expense than it is at present.

Farms and tenements have been long divided into lathes. These divisions, in the opinion of some writers, take their name from the Saxon saxon, to assemble; they are formerly distinct courts superior to the hundred courts; each of them comprehends several hundreds, and other smaller divisions. The lathes are as follows:

I. Sutton-at-Hone Lathe occupies the western extremity of the county. It is bounded on the north by the Thames, the west by Surrey, the south by Sussex, and on the east by an iron line drawn from the Thames just where Northfleet to the border of the county near Penshurst. It comprehends an area of 173,440 acres, and had in 1831 a population of 139,531. It includes the following hundreds:

1. Axton (or Axtane, or Blackstone), Dartford, and Wil-lington; 2. Blackheath; 3. Bromley and Beckenham; 4. Down; 5. Little and Lesnes or Lessness; 6. Ruxley; 7. Somerden; 8. Westerham and Eatonbridge. It is conterminous with Sutton-at-Hone Lathe; on the north it is bounded by the Thames, on the south by Sussex, and on the east by a line drawn from the Medway at Rainham below Chatham, south-east to Otterden near Charing, from thence north-west to Rainham; and the parish of Otterden, from thence north-west along the Beet to the junction of a stream flowing from the Teise, and from hence south along that stream and along the Teise to the Sussex border at Lamberhurst. It comprehends an area of 244,150 acres, and had in 1831 a population of 134,176. It is subdivided into the following hundreds:


III. Scray Lathe is on the western side conterminous with Aylesford Lathe. On the north it is bounded by the Thames, on the south by Sussex, and on the east by a tolerably regular line drawn from Sea Saltar near Whit-stable to Allington Corner, six miles west of Hythe; and from thence by Orestone and Appledore to the western end of Oxney Isle. It comprehends an area of 260,510 acres, and had in 1831 a population of 78,973. It includes the following hundreds:

31. Barnfield (East); 32. Barclay, or Barkley; 33. Black-borough, or Hiacene; 34. Boughton-under-Blen, or Bec-ton; 35. Calehill; 36. Chart and Longbridge; 37. Cranbrook; 38. Faversham; 39. Folkeborgh, or Folkeborgh; 40. Marden; 41. Milton, or Middleton; 42. Rovenden; 43. Selbüttenden; 44. Teutenden; 45. Teynham; 46. Wye. The Liberty of the parish of Scray is in the hundred of Barnfield, and has a constable of its own. According to Hasted, Chart and Longbridge, Calehill, Folkeborgh, and Wye hundreds have long been detached from the Lathe of Scray, and annexed to the hundred of Shippway or Shipway; but all our other authorities give them as being still included in Scray.

IV. St. Augustine Lathe (formerly called Holdenith Lathe) is conterminous on the west with Scray Lathe. On the north and east it is bounded by the sea; on the south it is conterminous with Shewpoy Lathe; the boundary line being drawn from the border of Scray Lathe, near the town of Wye, to Ewell near Dover, and from thence south to the parish of Hougham, and thence to the parish of Otterdon and of Fawkstone. Its area is 166,760 acres, and it had in 1831 a population of 103,621. It comprehends the following hundreds:

37. Bewbous; 38. Bleigate, or Bengalge; 39. Bridge and Petham; 40. Cornio; 41. Downhamford; 42. Eastry, or Estrege; 43. Kingshamford; 44. Preston; 45. Ringlow, or Tenet, or Tempe, or Tempest, or Tempting the Isle of Thanet; 46. Westgate; 47. Whitstable; 48. Wingham.

V. Shewpoy or Shippoy Lathe is conterminous on the north with St. Augustine Lathe, and on the west with Scray Lathe and the county of Sussex; and on the other sides by the sea. Its area is 127,380 acres; its population in 1831 was 25,849. It contains the following hundreds:


There are several parts of the county which have their particular 'liberties,' exempt from the jurisdiction of the county magistrates. They are as follows:—1. The county of the city of Canterbury, in St. Augustine Lathe. 11. The city of Rochester, and the borough of Maidstone, both in Aylesford Lathe. 11. The Liberty of Romney Marsh, comprehending the hundreds of Langport, St. Martin Pountney, and Worth, and part of the hundreds of Aloxbridge, Newchurch, and Street, and of the barony of Bircholt, all in Shewpoy. The Marsh is under the jurisdiction of its own bailiff and jurors. 11. The Liberty of the Cinque-Ports, which is partly in this county and partly in Sussex. The part which is in this county comprehends:—i. Sandwich, the conterminous with Sutton-at-Hone Lathe; on the north it is bounded by the Thames, on the south by Sussex, and on the east by a line drawn from the Medway at Rainham below Chatham, south-east to Otterden near Charing, from thence north-west to Salt's Den, and the parish of Otterden, from thence north-west along the Beet to the junction of a stream flowing from the Teise, and from hence south along that stream and along the Teise to the Sussex border at Lamberhurst. It comprehends an area of...
from the archdeacon's visitation. There were in 1833
Parish ten day-schools with 197 children; two day
and Sunday national schools with 236 children, and two Sun-
day-schools with 137 children.

About a mile north of Hythe are the ruins of Saltwater
castle; the outer walls, which are partly remaining, enclose
an elliptical area of three acres. These walls were strength-
ened by several circular towers, now much decayed.
The keep, or gate-house, which was almost en-
tirely rebuilt by Courtenay, archbishop of Canterbury, in
the time of Richard II., is now occupied as a farm-house.

In the lathe of Romney Marsh, in the sea, in Romney Marsh, and is 70 miles from London.

The name appears to be of Saxon origin. The etymology
given by Lye is Rymen-es, from Rume, wide, spreading,
q.d. the spreading water or marsh. Perhaps it may be from
Rume, the county, which has a small square or circular town in
some of the parishes of New Romney, and which has been
hitherto considered as being the seat of a manor, as well as a
priory and an hospital, of both which there are some remains.
At present it is an insignificant place, built on a soil of gravel and sand,
slightly elevated above the surrounding country. It consists
chiefly of one wide well-paved street, with a market-house
and a hall, or brotherhood-house, in which the mayor,
jurats, and commons of the Cinque-Ports frequently hold
Sittings. There is a weekly market and one yearly
fair. The church, which comprehends the parishes of
Romney and Ulverston, and with the manors of
Lewes, was in 1831, a population of 983.
The church is a very ancient
and handsome building. The lower part of the tower
and part of the nave are of Norman architecture and of
good composition; the upper part of the tower is of early Eng-
lish, and the remaining part-third of decorated English,
character, with large and fine windows. The living is a
vicaire in the diocese of Canterbury, exempt from
the archdeacon's visitation, of the clear yearly value of 161l.
and with a glebe-house not fit for residence, in the gift of All
Saints, Romney, near London.

There were, in 1829, two infant or dame schools, with
26 scholars, two day-schools with 50 scholars, and one national
day and Sunday school with 142 children. Up to the pass-
ing of the School Act, Romney returned to the county of
Suffolk, to which locality, as well as to the House of Commons, these, like the other members for the Cinque-Ports, were styled 'barons.' The first return of members from the town was in the reign of
Edward I. It was disfranchised by the Reform Act, and is one of the polling-places for East Kent.

At the village of Dymchurch, about four miles north-east
of New Romney, along the shore of Romney Marsh, is a
sea-wall or embankment of earth more than three miles in
length, by which the marsh is preserved from the inundation
of the sea. It is called Dymchurch wall, and its appen-
dicular height varies from fifteen to twenty feet above the general
level of the marshes: at the side next the sea it has a slope
of a hundred yards: the width of the top varies from fifteen
to thirty feet. There are sluices through it for draining
the water out of the marsh. As the town of New Romney arose, is now a mere village with a population
of 113 persons.

Bromley is in Bromley and Beckenham hundred, in
the lathe of Sutton at Hone, and near the Ravensbourne River.
It is about five miles from London Bridge, and 4360
acres, and had in 1831 a population of 4002.
The town consists principally of one street, with neat well
built houses, and having a market-house in the middle of
the town, supported on wooden pillars. The church con-
tains the monuments of Dr. John Vaughan, Sir George
Pearce, bishop of Rochester, and several others. The
office of Rochester's palace at Bromley is a plain brick mansion,
rebuilt a.d. 1777. In the palace garden is a chalybeate
The town of Cranbrook is irregularly built. The church is large and handsome edifice in the perpendicular style, with good buttresses and fine windows; it is advantageously placed on the brow of a small eminence. The town has several dissenting meeting-houses. Cranbrook was once the centre of the cloth trade introduced by the Flemings, whom the policy of Edward III. induced to settle in this country. Since the removal of this branch of the local trade to London, Cranbrook has been a mart for the agricultural produce of the neighbouring country, especially hops. The market, which is now held on Wednesday, is chiefly for corn and hops; every fortnight there is a fair in the town.

The living is a vicarage in the diocese and archdeaconry of Canterbury, and the hundred of Bexley, of 1634, with a glebe-house. There were, in 1831, seven day-schools (two of them endowed) with 299 scholars; and six Sunday-schools with 449 children. In the parish Cranbrook is situated, on the north and west of England, Cranbrook has had paper mills in the neighbourhood on the river Darent; and a large iron foundry and manufactories of machinery. The first paper-mill erected in this country was at Dartford; it was built by Sir John Spelman, a German, who had been employed by the present powder-mills: the first mill established in England was the rolling and slitting iron was also near Dartford. Bargate Street, which is the Thames up to the wharf below the town, was on Saturday; and for a considerable time was the principal road from the town to the main road. There were, in 1831, nine day-schools with 311 children; one of them was a national school. The Sunday schools were with 200 children; and three Sunday-schools with 166 children. The near the town are the ruins of a nunnery, founded A.D. 671, by Edward III., for Augustinian nuns, but afterwards used as a manufactory. At the dissolution several of the nuns were engaged in the mackerel and herring fisheries. The church,
which stands at the west end of the town, is a cross church of early English character, having a tower in the centre supported by strong piers. The western end was partly blown down by a hurricane in December, 1705, and when rebuilt the dimensions were considerably reduced. There are three distinct types of worship. There was a Benedictine priory at Folkestone, originally alien, but afterwards made denizen. A gateway in the wall and some part of the foundations are all that remain of this building. The trade of the coast has been fishing and smuggling, and both are now declining. The market is on Thursday, and there is one yearly fair. The council under the Municipal Reform Act consists of four aldermen or jurors and twelve councillors. The market-house and the guildhall have been lately restored, and is a perpetual curacy, in the diocese and archdeaconry of Canterbury, of the clear yearly value of £165. There were, in 1833, one infant-school, with 60 children; twelve dame-schools, with 251 scholars; six day or boarding and day schools, with 242 children; Sunday-schools, with 491 children. Dr. William Harvey was born at Folkestone.

Folkestone was by the Reform Act made part of the parliamentary borough of Hythe. There are two registers of births and deaths. The parish of Sandwich, which is partly in Folkestone parish, is a place of some resort as a bathing-place. There is a castle at Sandgate, built by Henry VIII, probably on the site of a more ancient one.

Gravesend is on the south bank of the Thames, locally in the diocese of Rochester, in the lathe of Aylesford, 22 miles from London Bridge through Dartford. The western part of the town is in the parish of Gravesend, the eastern in that of Milton. In the time of Richard II. Gravesend was destroyed, and most of the inhabitants carried into captivity by a squadron of French galleys. In the reign of Henry VIII. two platforms were raised for the protection of the town, and a blockhouse at Tilbury, in Essex, to guard the passage of the river.

The parish of Gravesend comprehends 650 acres, with a population, in 1831, of 5907; Montel contains 650 acres, with a population of 4348; making together 1280 acres, with a population of 9434. Gravesend has of late years become a great place of resort for visitors from the metropolis, and has been much enlarged and improved; the old town is however still mean and irregular. Two piers have been erected for landing passengers, and a convenient bathing-house for visitors. There are a library, concert-room, theatre, and gardens. The country round Gravesend is pleasant, and the view from the Windmill Hill, above the town, extensive. Th church, which is near the centre of the town, is a neat spacious brick building: there are a chapel of ease and several dissenting places of worship. Milton is near the sea to the north of them.

Formerly vessels sailing from the port of London were obliged to stop at Gravesend to take their clearances. Outward-bound Indians still take in fresh provisions here: seamen going out provide themselves with slops. There are considerable brickworks and brickfields about the town, and a great quantity of land in the neighbourhood is occupied by market-gardeners, who raise vegetables, especially asparagus, for the supply of the London markets. Many vessels are employed in fishing; and some rope-making and ship-building are carried on. The resort of visitors from the metropolis to Gravesend during the summer season is very great, owing to the cheapness of steam-boat conveyance and its convenient distance from London. The market is on Saturday, and there is a fair on Tuesday for corn. The gravel canal which unites the Medway and the Thames enters the latter near Gravesend. This town is one of the polling-places for West Kent. There is a fort at Gravesend, mounting sixteen guns.

The living of Gravesend is a rectory, of the clear yearly value of £307; that of Milton a rectory, of the clear yearly value of £359; both of them are in the diocese and archdeaconry of Rochester.

The incumbents of the parishes of Gravesend and Milton were incorporated by Queen Elizabeth. By the Municipal Reform Act the borough was divided into two wards: it has 6 jurors and 18 councillors. There were, in 1833, in the two parishes, two infant or dame schools, with 23 children; two elementary schools, with 160 children; one endowed day-school, with 34 children; seventeen other day-schools, with 449 children; seven boarding-schools, with 165 children; and four Sunday-schools, with 599 children.

Lydd, or Lul, is in the hundred of Langport, in the lathe of Shepway. The hundred is one of those included in the liberty of Romney Marsh; but Lydd is a corporate town, and a member of the cinque-port of New Romney, from which it is distant three miles. This place is mentioned in ancient records Hylia, and is supposed to be a corruption of the Latin luitus, 'a shore,' a name corresponding to its situation. It is upon the tongue of land, the termination of which is Denge Ness, about two miles from the sea; but there is no port, and, according to the old writers, it was never inhabited. The parish comprehends 11,660 acres, with a population, in 1831, of 1357, more than half of which was agricultural. The town consists of houses irregularly built on an open flat, and from its being quite out of any thoroughfare, and from its being surrounded, on the east, south, and west, by the sea, it is now deserted, and, if formerly supported, it is a dull decayed place. The church is a large building, with a fine tower in the perpendicular style, and crocketted pinnacles. The market is on Thursday: the Conspicuous part of the town is its Custom House, which is left untouched by the Municipal Reformat Act, consists of a pilliﬁ, jurats, and freemen. The baili and jurats are justices in the borough, which is co-extensive with the parish. The living is a vicarage, in the diocese of Canterbury, exz. London, for the supplementation of the clear yearly value of £1247l., with a glebe-house. There was, in 1833, only one school in the parish, a national school, of 118 children, with a lending library attached.

On the point of Denge Ness is a lighthouse 110 feet high, with 10 latt. ft. The town is traversed by water at this point, which is covered by the sea at very tide.

Milton, sometimes distinguished as Milton-next-Sittingbourne, is, in the hundred of Milton and in the lathe of Sittingbourne, on a creek or arm of the Swale, 994 miles from London.

This town was a demesne of the Saxons kings, who are said to have had a palace in the neighbourhood. In the struggle of the Danish chieftain Hastings with Alfred the Great, the garrison was subject here, the remains of which yet exist, under the name of Castle Rough. From its being overgrown with trees and underwood. The town was burned by Earl Godwin during his quarrel with Edward the Confessor, but rose to importance again in the time of Henry the Second. The parish was, in 1831, a population of 2233, of which about an eighth is agricultural. The town is on the side of a hill sloping down to the creek, and is ill built. The business of the place arises from its oyster fishery, and from its being the port of communication with the Swale, an agricultural district. In the centre of the town is the ancient court-house for holding the manor courts and public meetings, with the town gool beneath. The market is on Wednesday, and at market-time the cross is crowded. The town stands on the north bank of the river, is chiefly in the decorated English style; it is large and handsome, with an embattled tower at the west end. The living is a vicarage in the diocese and archdeaconry of Canterbury, of the clear yearly value of £226l., with a glebe-house.

There were in the parish, in 1833, seven infant or dame schools, containing 140 children; three day-schools, with 163 children; one day and Sunday national school, with 150 children, partly supported by endowment; and one Sunday-school, with 122 children.

Sevenoaks, in the hundred of Codsheath and the lathe of Sutton-at-Hone, is on the Hastings road, 24 miles from London. The town is ancient, and in an ancient document Sevenach, received its name from seven oak trees which once occupied the eminence on which the town stands. The parish comprehends an area of 6790 acres (of which 1916 are in the liberty of Riverhead, and 3210 in the Weald), and a population of 4290 souls, with 180 children, of the third agricultural. The town is situated on the northern boundary of the chalk marl and greensand range of high lands, in the midst of a fertile and well cultivated district. It is well built, and contains a number of good houses. The church is spacious, elegant, and, from its great and imposing size, forms a conspicuous object; it is chiefly in the perpendicular style. There are several dissenting meeting-houses. At the south end of the town is the grammar-school, which has a good endowment; there is also a large range of almshouses; both these are under the gift of Sir William de Sevenceo, a foundling brought up by some charitable persons in this town, from which he...
tusk his name. There are two other well endowed schools, founded by Lady Margaret Boswell, with a handsome school-house lately rebuilt. The market-house is an old building, in which the county assizes were held frequently during the 13th century. The corn market is on Saturday, chiefly for corn; there is a monthly cattle market; and also two yearly fairs. There are some silk mills in the neighbourhood. The living is a vicarage and

cure rectory, in the peculiar jurisdiction of the archdeaconry of Canterbury, of the clear yearly value of 93l., with a glebe-house.

Near Sevenoaks is Knowle Park, the seat of the Earl of Plymouth.

There were, in 1833, in Sir William de Sevenoaks's grange, 181 boys (11 on the foundation); in Lady Boswell's schools, 215 children of both sexes; and in thirteen other day or boarding and day-schools, 408 children. There were four Sunday-schools, with 397 children, three of them with lending libraries attached.

Sittingbourne is in the hundreds of Milton and the lathe of Scray, 40 miles from London on the road to Canterbury. The parish contains 1250 acres, and had, in 1831, a population of 2152, about one-eighth agricultural. It consists chiefly of one main street. There are some good inns, and the prosperity of the place depends in a great degree on the passage of travellers between London and Dover. The church is a spacious edifice, rebuilt, with the exception of the tower and the external walls, since A.D. 1702, when it was dedicated to St. Mary's. The living is a vicarage, in the diocese and archdeaconry of Canterbury, of the clear yearly value of 212l., with a glebe-house. There were, in 1833, three dame-schools, with 29 children; nine boarding and day schools, with 186 children; one national school, with six children; and one school for infants, with 22 children. Sittingbourne is one of the polling-places for East Kent.

Tenterden is locally in the hundreds of Tenterden and lathe of Scray, but has a separate jurisdiction, being a member of the cinque-port of Rye. It is 55 miles from London, on the road through the Weald of Kent to Romney. The parish comprehends 8620 acres, and had, in 1831, a population of 3177, about half agricultural. The town stands on an eminence, in a rich agricultural district, upon which is lighted the spring of Goodwin Sands. The Romney road, and contains some good houses. The church is a spacious and handsome edifice, chiefly of perpendicular character, having a lofty tower at the west end, to which a beacon was formerly attached. It has been a popular saying that “the church is the queen of all the churches in Kent.” This has been supposed to originate from the circumstance of the funds destined for keeping up Sandwich haven having been applied to the building of this church. There are some dissenting places of worship. There is a townhall, a modern building, sometimes used as an assembly-room. The market is on Friday, and there is a yearly fair. When the clothing trade was carried on in the Weald of Kent, this town was one of the manufacturing places. Tenterden was incorporated by Henry VI. The corporation, under the Municipal Reform Act, consists of 4 jurors and aldermen and 12 councillors. The living is a vicarage, in the diocese and archdeaconry of Canterbury, of the clear yearly value of 177l. There were, in 1833, a national school, with 190 children; one school for the education of the poor, with some children; one grammar-school; six other day schools, with 127 children; and four Sunday-schools, with 181 children.

Tunbridge, or Tonbridge, is in the liberty of the Lowery of Tunbridge, and in the lathe of Aylesford, 30 miles from London. In the time of the Conqueror, there was a castle built on this spot on the banks of the Medway by Richard Fitz-gibert (otherwise Richard de Tunbridge), afterwards earl of Clare; and the town rose under the protection of the Earls of Clare. Tunbridge was included within the demesne of Henry III. The castle was besieged and taken from its owner Gilbert Rufus, earl of Clare, Gloster, and Hertford, by Prince Edward. During the siege the garrison burnt to the town. There was also a priory at Tunbridge founded by Richard de Clare, first earl of Hertford, in the time of Henry I, for canons of St. Augustin, the revenue of which at the suppression was 1692l. 16s. 3d. The parish comprises 2152 acres, and has a population of 10,580, about one-fourth agricultural. The town consists of a market place, broad, partly paved, and, from its being a decidely, clean. There are several bridges over the Medway, which is here divided into various arms. Near the principal bridge is a market, where the produce is carried down the Medway. The church, which is near the centre of the town, is a large and handsome fabric, in various styles of architecture. There is a free-school, founded by Sir Andrew Judd, and richly endowed: it has 16 exhibitions of £10 per annum, to be holdable at an university. There are also Canons, besides thirteen other exhibitions, and a fellowship at St. John's College, Oxford. There are a townhall and market-house. The ruins of the castle, which are near the centre of the town, consist of an entrance gateway, flanked with round towers, and tolerably perfect, and of the artificial mound on which the keep stood; the outer walls enclosed an area of six acres. The ruins of the priory consist principally of the refectory, now converted into a barn. There is a weekly market on Friday, and a very fair market on Saturday, also one yearly fair. The trade of the town is in coal and timber brought from Maidstone for the supply of the neighbourhood; gunpowder and wooden wares (which last take their name from the town) are made to a small extent in the vicinities. The living is a vicarage, in the diocese and archdeaconry of Rochester, of the clear yearly value of 763l., with a glebe-house.

There were in 1833 seven infant or dame schools, with 29 boys and 25 girls; and grammar-schools, with 100 boys (60 of them on the foundation) and 215 children. There was the 'Tunbridge Free-school,' with 57 children; and fourteen other boarding and day schools, with 430 or 440 children; four day and Sunday schools of the established church (two of them connected with a grammar school), with 291 children, and three Sunday schools with 420 children.

Tunbridge Wells is between five and six miles south of Tunbridge, upon the border of Kent and Sussex, part of it being in each county. It extends into the hundreds of Speldhurst and Tunbridge (Tunbridge and Scray), and Frant (Rotherfield hundred, rape of Pevensey, Sussex), but is chiefly in that of Tunbridge. The population cannot be given distinct from that of the parishes in which the town is situated. The chalybeate springs from which the town owes its origin, was first noticed in the reign of James I, by Dudley lord North, who had been residing in the neighbourhood for the recovery of his health. The benefit which he derived from the water led to the visit of the whole court, who were also much interested in the town, which was then nothing but a hamlet. The town was, however, long neglected, and enclosed, and the visitors found accommodation at Tunbridge town. The water is chalybeate, and nearly equal in strength to that of Spa, in Germany. The soil is dry, and the air of the place is healthy, though damp. When Hendon, the first Duke of Marlborough, who resided at Tunbridge Wells, and his suite remained under tents. By degrees however permanent habitations were erected in the immediate vicinity of the wells, and at the neighbouring villages of Southborough and Rushall. After the Restoration the place rapidly increased. A chapel was built at Tunbridge Wells dedicated to King Charles the Martyr; a subscription-school was also established, and an assembly-room, coffee-house, bowling-greens, and other places of amusement were built. The town was enriched by the building of the High Road, and the surrounding buildings are distinguished by the names of Mount Zion, Mount Ephraim, Mount Pleasant, and Bishop's Down. About a mile and a half south-west from the Wells, in the county of Sussex, is the High Road, which crosses the River Medway, and enters the town. About a mile south of the town is the entrance of the Tunbridge Wells, which is the largest and most honourable scene. The chapel at Tunbridge Wells has been enlarged since its first erection, and stands partly in each of the three parishes. There is a new church lately erected in Tunbridge parish, and there are some dissenting meeting places. The town contains some interesting groves of horse-chestnut and beech. There are many fine trees, especially near the west and north of the town. Article articles turned in honey, plum-tree, cherry-tree, sycamore, and various foreign woods.

Southborough is midway between Tunbridge town and
the Wells. A new district church has been erected here, and there is (as already noticed), an endowed free-school. The place consists of a number of scattered houses.
The living is in the hundred of Westerham, in the lathe of Sutton-at-Hone, 21 miles from London, through Bromley. It is near the source of the Darent, and in the valley of Holmealde, between the chalk and the ragstone hills. The parish has an area of 5740 acres, and the population in 1831 was 9895, and in 1851 9541. The church was formerly a small chapel of ease.
The town is on a declivity; the principal street runs east and west on the road which runs from Maidstone along the valley of Holmealde into Surrey. The church is a very prominent object in the village, and was once the ancient and picturesque style; it contains a neat cenotaph to the memory of General Wolfe. There are one or two dissenting places of worship. The market is on Wednesday, and there is a yearly cattle-fair.

At present the vicarage is united with the parochial chancel-ship of Edenbridge; they are in the diocese and archdeaconry of Rochester; their joint annual value is £608s., with a glebe-house. There were in 1833 a national school with 46 girls, and five other day-schools with 144 children; two boarding-schools with 45 children; and two Sunday-schools with 96 children.

General Wolfe and Bishop Hoadley were natives of Westerham.

Sutton-at-Hone, or Quinbrovere, is in the liberty of the Isle of Sheppey, in the lathe of Seray, 454 miles from London, by a road branching from the Dover road eight miles beyond Chatham, and leading into the Isle by King's Ferry over the West Swale. Queenborough (antiently Cynbingbrovere) was a Saxon king's burgh on the site of which Edward III. commenced a new and more extensive fortress. Edward made the town a free borough, and gave it the name of Queenborough, in honour of his consort Philippa. This castle was demolished in the time of the Commonwealth, but the moat and walls point out its site. The well, after being partly filled up with rubbish, was cleared out and restored to use in 1725; it supplies the town with water. Queenborough is a poor place; the great occupation of the inhabitants is the oyster fishery; a few of them possess boats of their own. The houses form one main street; the church was originally a chapel to the parish church of Minster, but is now parochial; the interior is neat. There is a guildhall and a small gaol under it. Queenborough has a corporation, and until disfranchisement by the Reform Act it returned two members to parliament.

The parish had in 1831 a population of 786. The income of the corporation is derived from the oyster fishery, the market, and the guildhall; in addition, a large grant was made in the same year. The population in 1831 was 9930, in 1851 9541. There were in 1833 a free-school, with 72 children, five other day schools with about 100 children, and two Sunday-schools, with 177 children.

St. Mary Cray, the most considerable of the villages which take their name from the river Cray (the others are St. Paul's Cray, Foot's Cray, and North Cray), in Ruxley hundred, Sutton-at-Hone lathe, is on a cross-bridge which connects the Maidstone and Hastings roads, 13 miles from London. It had formerly a market, but it was discontinued in 1703 in consequence of the market-house having been blown down. The population in 1831 was 877. It was in 1751 a Chetwell. In LONDONING hundred, Shepway lathe, on the Lesser Stour. It was formerly a place of consequence, though now only a village. A market was granted by Henry III., and it is still held at intervals of five or six years in the market-house, which is yet standing. The principal annual fair is called the mantoues fair. The church has a large tower of early English architecture, with a small leaden spire. Population in 1831, 1302. Eatham is in Blackheath hundred, Sutton-at-Hone lathe, in the parish of London on the road. It was a royal palace built at an early but unknown period. Henry III. kept Christmas here A.D. 1270. Most of the succeeding sovereigns frequently resided here till Henry VIII., but on the rise of Greenwich it was deserted. The present. palace is a large house, but the site of the ancient hall, 100 feet long by 56 broad, and 60 high, now occupied as a barn or cow-house: the windows now bricked up have been extremely elegant: the roof is of timber curiously wrought and richly ornamented. The area of the palace is surrounded by a high stone wall, and a broad deep moat, now converted into a garden, over which are two bridges. Population in 1831, 2605; or including the hamlet of Sutton-at-Enn, 3106. Eatham is in the hundred of Maidpen and partly in Cranbrook hundred, in the lathe of Seray. The church, which is on a commanding eminence, is a spacious fabric, with a low massive western tower formerly crowned with a statue of St. Edward. There are two other churches, one of the clothing towns of the Weald, and had a weekly market. Population in 1831, 2758. Lenham is in Byborne hundred, in the lathe of Aylesford, on the road from Maidstone to Ashford and Folkestone. The market was discontinued early in the present century, and the closing of the sixteenth church fell. Population in 1831, 2197. TOWN Malling, otherwise West Malling, is in Larkfield hundred, lathe of Aylesford, 29 miles from London Bridge, just out of the Maidstone road. Here was an antient Benedictine nunnery, the yearly value of the possessions of which is stated as £292 10s. 6d. clear. Many parts of the conventual buildings are yet standing, especially a portion of the west end of the church, a beautiful specimen of Norman architecture. There is an antient church, and the site of a hamlet of Malling, 71 feet high, much resembling the keep of a Norman castle; it belonged to St. Leonard's chapel, now destroyed. Town Malling church, a handsome and spacious building, has a Norman tower at one end, and a large bell-tower at the other. The town market, held on Saturday, has not been long discontinued. Population in 1831, 1459. Smarden is in Calehill hundred, in the lathe of Seray, in the Weald. The market-house is yet standing. There are one or two dissenting meeting places. The parochial church of Smarden is in Wrotham, and is Wrotham in Wrotham hundred, in Aylesford lathe, 21 miles from London, on the Maidstone road. It lies near the foot of the chalk hills. The church is a large well-built edifice in a great mixture of styles. The market was held here in the centre of the village at the end of the principal streets. Population in 1831, 2601. Wyke is in Wyke hundred, in the lathe of Seray, about three miles north-east of Ashford under the chalk hills. Here was once a Roman town, the remains of which have been preserved. The church of Wrotham is called the Roman Catholic church, and was built about the end of the sixteenth century. Population in 1831, 1639.

Besides the foregoing decayed market-towns, one or two villages claim notice. Lewisham, in Blackheath hundred, in the lathe of Sutton-at-Hone, consists of a long street of good houses, extending about two miles along the Hastings road. There is a modern church near the centre of the town. There are a grammar-school and an English school. Lewisham has a market only once in the week. Smarden, in Smarden hundred, which is also a part of Lewisham parish, which had in 1831 a population of 9569. Broadstairs on the coast, near the North Foreland, has risen into notice as a watering-place: it is in the hundred of Thanet, and St. Augustine's parish. A small hospital, for the reception of persons suffering from consumption, has been commodiously built here, and the passage down the cliff to the sea was defended by an arch, gates, and portcullis; the arch still remains. There are some remains of an antient chapel near the pier, which is now converted into a dwelling-house. There are many good houses at Broadstairs, with libraries, warm baths, and other accommodations. Many Roman coins have been found here. Minster, in the Isle of Thanet and Kingswood hundred, had an antient nunnery destroyed by the Danes. The church is antient, and chiefly of early English character: it is a cross church, with a tower at the west end. Minster in Sheppey (lath of Seray), had also a very antient nunnery, whose yearly possessions at the dissolution were valued at 292 7s. 10d. gross. The gateway and the gateway-house are ancient.

Whitstable, in Whitstable hundred, in the lathe of St. Augustine, on the estuary of the Thames, is about six miles from Canterbury, with which city it communicates by a good road. Whitstable is considered as the port of Canterbury. The king's ferry boats are landed there, and in summer they charge their cargoes here. The inhabitants are employed in the oyster fishery; in dredging for oysters round a rock called the 'Pudding-pans,' many pieces of Roman pottery have been found on the shore. In 1829 Whitstable-street extends into Seasalter parish. A few miles east of Whitstable, on the estuary of the Thames, is the new watering-place Herne Bay, which contains many good houses and several hotels; but the place has been laid out or
so extensive a scale that it will long have an unfinished appearance. There is a pier or jetty, built on wooden piles, extending three-quarters of a mile over the sand or ooze, with a handsome clock-tower stands near the jetty. Steam-boats of all sorts have their stations here.

The county was formerly divided between the dioceses of Canterbury and Rochester. The part east of the Medway constituted the diocesan and archdeaconry of Canterbury; it included, besides the whole deaneries of Bromley, Charing, Canterbury, Charings, Dover, Echelham, Linne, Ospring, Sandwich, Sittingbourne, Sutton, and Westbere, and comprehended, according to Hasted (a.D. 1778) two hundred and eighty-one parishes. The remaining part of the county, west of the Medway, constituted, for the most part, the diocese and archdeaconry of Rochester; it was subdivided into the three rural deaneries of Dartford, Malling, and Rochester, and comprehended ninety-eight parishes. The church of Shoreham, west of the Medway, comprehending thirty-four parishes, was in the peculiar jurisdiction of the archbishop of Canterbury.

By the late act 6 & 7 Will. IV., c. 77, provision has been made for the alteration of these arrangements. The parishes included in the deanery of Lewisham, Gray's Inn, and Woolwich, Plaistow, Plumstead, and St. Nicholas and St. Paul, Deptford, all hitherto in the deanery of Dartford, and diocese of Rochester, and in the neighbourhood of London, are to form part of the diocese of London: the city and deanery of Rochester are to form part of the diocese of Canterbury, in the latter county and archdeaconry of Rochester.

The town is in the Home circuit, excepting certain parishes near London, namely, Charlton, Lee, Lewisham, Greenwich, Woolwich, Eltham, Plumstead, and St. Nicholas and St. Paul, Deptford, which are in the jurisdiction in (criminal matters) of the Central Criminal Court. The sessions are held at Maidstone, where the whole county and the town is within its jurisdiction. For subordinate jurisdictions the county is divided into East Kent and West Kent; the former comprehending the lathes of St. Augustine and Shepway, and the southern lathes of Rochester, to which diocece nearly the whole of Essex and the whole of Hertfordshire are added; the remainder of Kent is to form the diocese of Canterbury. The deanery of Rochester is to form an archdeaconry in its own right.

History and Antiquities.—This county comprehends that part of Englauld which from its proximity to the Continent first obtained distinct historical notice. The name is very antient, probably of Celtic original: it has been inferred, from a comparison with other names which seem to include the same element (Cant-ire, Cant-abri, Cant-go), that it was derived from the “cornb” or “cornfield” which a chief or powerful town was conversant to the position of this and of the other counties or nations mentioned.

Cæsar mentions the district by its name, which he gives as Lutinium, or the Lutunian form Cantium; he ascribes to the inhabitants civil and military manners inferior to those of the other tribes. It was the part on which his attack was made in his first invasion, and he did not then pass beyond its limits; in his second invasion he passed through it to the assault of the other tribes; some of them submitted, others made way for his march in this county, and in his absence five of the reguli or petty princes of Cantium made an unsuccessful attempt to storm the fortified intrenchment which protected his fleet, &c. 54. In the invasion under Aulus Plautius, a.d. 43, and in his subsequent war with the Romans, there are no historical incidents the locality of which can be identified with Cantium, except the destruction of London by the insurgents under Badicæa. Polemy places Auvainviov (Lundinum) among the towns of the Cantian (Cantii, or people of Cantium); a statement which, if accurate, supposes the district to have exceeded the limits of the present county, whether we place the ancient Lundinum on the north or south side of the Thames; and it is most likely was situated near or close to the mouth of the river, as if it was placed in the latter part of the name, some part of Middlesex must have been included in Cantium.

In the division of the Roman empire which prevailed in its latter period Cantium was comprehended in the province of Britain, which itself (one of the three dioceses of the empire of Britain) was divided, except that part of it (of any) which lay north of the Thames, which was in the province of Flavia Cæsariensis. Several important stations were within the limits of the modern county. There were the four harbours of Regulbium, or Richborough, and Ad Portum Ritusip, Richmond, or Sandwich, or Ad Portum Dubris, Dover; and at Dunmow, or Ad Portum Lenamini, Lenomine, or Dunmowe, near Hythe. Roads from these places met at Duruvonium, or Canterbury, from whence the military way called Watling Street ran in a direct line to Londinium, London, passing by the way through Durolevum, Newington, or more probably Juicile Hill near Ospringe; Duruvonia or Durobrivis, or Richborough, and Vagnacum, Southfleet; lastly, the road from Regulbium is mentioned in the 'Notitia Imperii' and by Richard of Cirencester. Besides these there were other stations, as Madus, mentioned by Richard and noticed in the Peutinger table; or, and Andecora, a harbour mentioned in the 'Notitia Imperii' and at St. Margaret's, which is more likely have been on the coast of Sussex. Besides Watling Street, and Stone Street, which runs from Canterbury to Lympne, there were probably several road in Kent which have not been distinguished by any particular name.

Of these stations and roads there are many remains. Regulbium, now Reculver, defended the northern entrance of the channel between Thanet and the rest of the county. The narrow and encroaching sands have made the sea have withdrawn a good deal from the town. The church of Reculver, which forms a well known sea-mark, occupies the centre of the town. The enclosure was a square with the angles rounded off. Parts of the walls on the east, south, and west side remain: in their general structure they are very much like those of Richborough Castle, but are in a much inferior state of preservation. The town is supposed to have been to the north of the station, on a site now undermined and washed away. Many Roman and Saxon remains have been discovered here, and inscribed coins are still often found after heavy rains. Richborough Castle, near Sandwich, is the Ritusip or Ad Portum Ritusip of the Romans. The name of this place is variously spelt. It is called Ad Portum in Antoninus; Ritusip, by Polyjeny; Ritusip by Richard of Cirencester, who terms it a colony; and Ritusip in the Peutinger table. Ritusip is the presumed nominative of Ritusips, as Dubræ of Dubris, and
Lemanus of Lemanis. Richborough is one of the noblest Roman remains in the island. It was the usual place of communication with the Continent, and guarded one mouth of the channel which then insolated Thanet. It stands on a small elevation, along the base of the spur of the Stour flows, and about one mile in a direct line from its entrance into Pegwell Bay. The walls form a parallelogram, but the east wall has disappeared and probably fallen into the Stour within the lines of the map. The western walls are flanked by projecting round towers at the angles, and by intermediate round towers. There is a large opening in the west wall, and a narrow one, the Porta Decumana, in the north wall. The foundations of the walls are laid with great care, and the walls were built of blocks of flinty stone, and faced on both sides with squared blocks of Portland or grit-stone, banded at intervals with double rows of large flat tiles. The walls to the height of six feet are eleven feet three inches thick, above that height they are ten feet eight inches. The top of the wall is everywhere imperfect; its greatest height is twenty-three feet. A quarter of a mile from the south-west angle of the castle are the remains of a Roman circular amphitheatre of about seven acres. Several wells and other antiquities have been dug up here. In the circuit of Dover Castle are the ruins of a pharos or watch-tower, an indubitable relic of the Roman Duxii. This watch-tower has an octagonal base externally, but within it is a square: the height, when examined, is about forty feet; the upper part is an addition or repair of a later period. The foundations were laid in a bed of clay, though it is built on a chalk rock. The structure is composed of long, thin, irregular bricks, with intermediate courses formed by blocks of flint, with fragments of the stones of the outcrops: it is in a very considerable state. The ruin of an old church adjoining the pharos is not Roman, but Roman bricks have been worked up in it. At Lymne, or Lympne, near Hythe, are the remains of the Porta Limene, or Stukeley Porta Limene. This fort, now called Stuffall Castle, had an area of about five acres. Stukeley and Leland have much exaggerated it; the walls are imperfect, and have been overthrown in some places by the subsidence of the soil, which has been caved in by the hill or cliff on which it stood. The river Limene or Rother formerly had its course under this hill and formed the harbour. Richard spells the name of this place Lemanus.

At Durovernum (Canterbury) numerous antiquities have been discovered, and until towards the end of the last century three semicircular arches of Roman bricks were standing in different parts. Many Roman bricks have been worked up into the city walls. Richard gives to Durovernum the name of Rochester. At Durovernum antiquities have been found, and Roman bricks have been worked up in the ruined walls of the cathedral precinct. The name of this place is said to have been corrupted in the later period of the empire into Roibus (Roubae), or, in the Petronian period, into Roibus (Rochembourg). It appears to have been formed the Saxon Hrof-Ceaster and the modern Rochester. Bede however derives Hrof-Ceaster from one Hrof, a Saxon chieftain. To Durolevum two positions have been assigned: at Newington there are the remains of entrenchments, and an abundance of Roman pottery has been dug up; on Judde Hill, in the parish of Orpprise, south of the Canterbury road, which agrees better with the distances of the Itinerary, are the remains of a square camp with a ditch all round. Remains of kitchen and fragments of ceramic vessels, intermixed with many parcels of oyster shells, have been found; and in the ruins of Stone Chapel, just on the other side of the road, Roman bricks have been worked up, and in one place a separate piece of a Roman wall has been built. At Southfleet, the Roman Vagnis, a large earthen vessel and a stone tomb containing several funeral antiquities were discovered early in the present century. On Holwood Hill, near Farningham, on the Hastings road, the ancient Noviomagus there are the remains of an elliptical entrenchment, in which Roman bricks and tiles have been turned up by the plough, and Roman coins picked up. Noviomagus, is said by Richard to have been the metropolis of the Bibroci. To the Madus of the Britons (Thames) it is believed to have assigned a position which will accord with the distances given by him. The name would lead us to Madstone, or some post, or ferry, or ford, on the Medway, but the distances as they stand will not admit of this. Some identify the place with Durobrivius or Rochester, but the numbers will not agree with this supposition. It may be mentioned here, that the numbers in Richard's Itinerary (Durolovi.-Mado XII. Vagnis. XVIII.), if correctly read, would suggest the distance of Maidstone from Judge Hill and Southfleet respectively, if we suppose a branch road from the Watling Street at Newington to Maidstone, and another road direct from Maidstone to Watling Street at Southfleet. Thus if we observe, in 'ilitore oceani ad meridies,' would lead us to some position on the Sussex coast as the site of this town.

Of the Roman roads, the Watling Street, which nearly coincided with the present road from London to Canterbury, may be traced in several places. Thw observed traces of it on or near Blackheath. It is still visible on Bexley Heath, and again just beyond Dartford, where the modern road bends to the left towards Gravesend, while the old was a direct route from Southfleet to Rochester. From hence to Canterbury the antient and modern roads coincide, and the traces of the antient one appear to have been, except in a few places, obliterated. The branch of Watling Street which led from Durovernum (Canterbury), was the one now of Thanatos, and the channel which insulates it, under the name of Wantaunder, which appears in Richard's map, is probably Canvey Island on the Essex shore; but its position more nearly resembles that of Sheppey.

The invasion Cantium was the scene of many interesting events. The brothers Hengist and Horsa landed in Pegwell Bay, near Ipswich Fleet, now Ebb Fleet, in Thanet, probably about A.D. 446 or 449. Their force consisted of three ships, and perhaps three hundred men; and it is uncertain if their arrival was a hostile, or whether they premeditated an invasion for the sake of plunder. One of the island princes, Wyrtgern or Gwrthbeyrn (popularly Vortigern), engaged them to support him against the invasions of the Scots, whom they repelled. The battle of Alderead (Aldershot West and Horsa near Bovington, the Anglo-Saxon denoting a horse); and their exploits are, if not entirely fabulous, of so doubtful a character as to deserve little credit. Having received a grant of the Isle of Thanet, and a channel of some width, they received accensions of strength from their contempt at home, and were soon involved in hostilities with the Britons. Thanet was called by the Britons Rumi or Ruyrn.

Of the early battles of Hengist and his Jutes with the Britons, the principal were fought in the year 485; the first on the Darent (Darent); the second at Esphor or Eglesford (Aylesford) on the Medway, in which battle the British prince Catigern, son of Vortigern, and the Saxons, Horsa, fell; and the third at Stonor, near Sandwich. The battle of Pole, in which the Jutes felled to their ships, and did not return to England till Vortigern's death, two years after. In A.D. 457, Hengist and his son Eric or Asc, are said to have defeated the Britons at the Thames. The name of the battle is still confused; the position of which indicates the advance of the Jutes; yet evidence was probably only for plunder, as the next recorded engagement, eight years after, A.D. 465, was at Wippendales-Flote in Thanet. In A.D. 473, the Jutes obtained another victory at the place called Hamayn. Hence it is (A.D. 488), leaving a reputation out of all proportion to the real extent of his achievements. The ravages of other seem to have been ascribed to him, and his pre-eminent
has probably resulted from his priority in point of time rather than from the wider extent or greater destructive
ness of his power, the priority in point of time is questionable; for it has been supposed that during the
decade of the Roman power the east coast, or the Saxon
shore, had been to a considerable extent colonized by Saxons. 
Hungra, Kinnares, or ancient Wessex, was never extended beyond Kent, and it may be questioned if he ever took the title of king. His son Bisc
and was honoured as the real founder of the Kentish
dynasty of the Ascings, or sons of the ash-tree. Kent was
called by the Saxons Cantwaraland: Durunorum became 
Cantia, and sons Athelstan, or Ethelbert, was regarded as
the charter of Ethelbert, Kent was Cantia, and Canter
bury Dorobernia.

Ethelbert was succeeded by Æthelwulf or Æthelberht, and Ermeric, whose genealogy and the period of whose reigns are obscure. Kent was reunited to Wessex. In the year 686, during the six years of
his reign, he claimed the supremacy of the Anglo-Saxon
princes, and invading the domain of Cawlin, king of
Wessex, was the most powerful of them, was defeated by
this prince and his brother Cutha or Cuthulf, at Wibbanune
and his fleet was destroyed. In the same year, Ethelbert
obtained the supreme power or dignity of Breta
land, which he retained until his death d. 616. After
the conversion of Ethelbert to Christianity, a church was built
near Cumnor, adjacent to the royal palace, which was the
metropolis of the west Saxons. It was the
(figures) of the political supremacy of Ethelbert and his earlier
conversion, became the ecclesiastical metropolis of England.

Ethelbert

But Ethelbert, son and successor of Ethelbert, the
knew of Kent lost the supremacy which the talent or power
of Ethelbert had acquired. A succession of obscure princes
followed: Erconbert, a.d. 640; Egcbryth, or Egbert, a.d.
654; Hlothhere, or Lothar, a.d. 673,—in the reign of this
prince the army and penetration of the Saxons
were extended beyond the Kentish
lands, and shortly after
he died, destroyed Rochester, a.d. 676; Eadric
(d. 685) had previously reigned for some time in con
nection with Hlothhere, with whom he was compatriot
of the royal power, which he compelled him to divide.
In the
year Ethelwulf, son of Ethelbert, and his brother Molf, or Wolf, attacked and ravaged Kent
with extreme ferocity. Molf was surprised by the Ken
men, driven into a hut, and burnt with twelve followers.
Chielas, king of Wessex, who
never entered his kingdom, being captured in the
course of flight, and destroyed Rochester, a.d. 676; Eadric
and Swæbard or Waebard, were kings of Kent
a.d. 690 and 693: the former reigned for more than
forty years. He paid a heavy fine to Lina of Wessex, who
were invaded by the Mercians, and driven beyond the Kentish
lands. Eadbert, Eadbrey, and Alric, brothers, reigned in conjunc
tion under the supremacy of Mercia, a.d. 725. Alric was
the survivor of the three, and in him ended the line of the
Ascings.

In a.d. 752, Kent was subjected to Mercia, for Kentish men
were part of the army of Ethelbald, the Mercian king, in
the war against Cuthred of Wessex. In the following half
century Kent appears to have been in an unsettled state,
for it had been divided between two or more petty princes:
that went Aemund, Edmund, or Eamund, father of
Æthelbert, afterwards king of Wessex, may be numbered.
During part, if not the whole of this period, Kent was in
connection to Mercia, having been conquered by Offa, who
sold it in 756, a.d. 756, at Otford. About a.d.
759 or 767, Eadbert, or Ethelbert, then king of Kent, was
attacked by Conulf of Mercia; and having been seized by
one of his own subjects, the Merewares, or men of Rom
March, was by them cruelly mutilated and delivered to the mercy of the
Mercians. Eadwine, or Eadwald, the son of Eadbert, was
his brother Cuthred, as subordinate prince; but on his
death resumed the direct government of it. Other princes
were subordinate to Mercia, but were soon appointed, by
Baldred, known as one of Wessex. This was now establishing its
power over the other Anglo-Saxon kingdoms. Egbert, 
king of the West Saxons, having defeated the Mercians at
Redun or Redun, a.d. 823, dispatched a force into Kent
for his son Ethelwulf, the Ealdorman or Alderman Wulf
and Alstan, bishop of Sherbourn. Baldred fled at
this approach; and Kent passed from under the Mercian
Pepin, a.d. 819.
age to occupy that post. A detachment of the Norman force having landed at Romney just before the battle, were defeated by the townspeople, who led William, when after the battle he marched along the coast, in order to secure the ports which communicated with the Continent, to burn that town and massacre the inhabitants. Having secured Dover Castle after a slight resistance, hung the governor, and burnt the town, he marched toward London by Watling Street; and in his way conciliated the favour, or at least disarm'd, of the men of Kent, by granting of the continuance of their privileges. An unsuccessful attemp te was subsequently made, A.D. 1067, by the Kentish men, aided by the Earl of Boulogne, to surprise Dover Castle. In the reign of William Rufus, Kent was the scene of war. On the death of Bayeux and earl of Kent, raised the county in favour of Robert duke of Normandy. Rochester town and castle were defended on behalf of Odo, to whom the castle belonged, by Eustace earl of Boulogne, and the battle did not capitulate till after a siege of many weeks.

King John, when threatened with an invasion by Philip II. Augustus of France, encamped with an army of 60,000 men on Barham Downs; but his courage failed him, and he made his memorable submission and surrender of his crown to Pandulph, the Pope's Legate, at Dover. In the subsequent troubles, A.D. 1215, John collected an army of mercenaries at Dover, and marched inland; but William de Albini bravely defended Rochester Castle for three months against the king which he was so near reaching. After the surrender of the castle he ordered all the common soldiers, except the cross-bowmen, to be hung. In A.D. 1216, Louis, dauphin of France, landed in the Isle of Thanet, near Sandwich, in order to assist the barons, and took possession of Rochester after a short siege but when he retired and the death of John, it again submitted to the crown. The rest of Kent submitted for a time to Louis, except Dover Castle, which was all along defended for the king against the dauphin and the barons by Hubert de Burgh. In the succeeding reign Rochester Castle was defended for the king against Simon de Montfort, who besieged it in vain.

It was in Kent that the rebellion of Wat Tyler broke out. The Commonwealth county, and in Essex rose in a body, A.D. 1381. They attacked the archbishop of Canterbury's house at Maidstone, and released John Bale, a priest, who had been imprisoned for teaching doctrines like those of Wickliffe. The issue of the rebellion is well known. In the reign of Henry VI. the insurrection of Jack Cade broke out in Kent, A.D. 1450. [Cade.]

At the outbreak of the war of the Roses, A.D. 1451, Richard duke of York encamped near Dartford, where he fortified himself. The king, Henry VI., encamped on Blackheath, and after some days, A.D. 1460, the crown revenue at the dissolution was 142l. 8s. 9d. gross, or 90l. 2d. clear. The walls of the outbuildings, gardens, carry a considerable extent of ground, and the whole area of the house has been surrounded by a semicircular rampart and ditch. The walls of the entire; the north and west sides of the chapel, and part of the dwelling, now patched up as a farm-house, are standing. The walls are generally covered with ivy. There are considerable remains of the Bennettian priory at Dover including the gateway and refectory, both nearly entire. The abbey of Faversham and Malling, and the priories of Tunbridge and Folkestone, have been already noticed. Of Boxley Abbey, near Maidstone, there are few remains; and of Maidstone, of the Parliamentarians, under Fairfax, obtained a complete victory. In the reign of Elizabeth the river Medway appears to have formed the only harbour for the royal navy, then in its infancy. The dock at Chatham was built by that queen, and she erected Upnor Castle, on the opposite side of the Medway, to defend the passage of the river. In the reign of Charles II., A.D. 1667, a detachment from the Dutch fleet under De Ruyter sailed up the Medway as far as Upnor Castle.

Of ancient castellated edifices, not already noticed or referred to, the most remarkable are Leeds, Haver, Chelham, Allington and Westerham castles, to which may be added the castellated mansions of Penshurst and Knowle. Leeds Castle, overlooking the met of the road between Dart ford and Maidstone, is four to five miles from Maidstone. It is surrounded by a broad moat; the entrance is by a stone bridge of two pointed arches, and through a deep gateway in good preser vation. Another gateway, which defended the entrance of the bridge, is in ruins. Part of the building has been modernized: the foundations of the more ancient part, which formed the keep, rise immediately from the water, and are very strong. Leeds Castle was the residence of the bishops of Rochester, who had the use of nearly one of the upper waters of the Medway, was erected in the time of Edward III., and possesses some historical interest as the residence of the Boleyn family. Here Henry VIII. was married.

The castle is surrounded by a moat; the entrance gateway is flanked by round towers; the inner buildings form a quadrangle enclosing a court. Chilham Castle, about mid dle of the fifteenth century, was built by Thomas, 1st baron de Coningsby, by which there was probably a Roman building. After the Conquest a Norman castle was built here, of which the keep is the only part in good preservation. It is an irregular octagon of three stories, with walls ten or twelve feet thick, built of stone, chalk, and sarsens, and enclosed with square stone, and now mantled with ivy. The interior has been much altered and damaged; the view from the platform is very fine. The remains of Allington Castle, on the left bank of the Medway just below Maid stone, are occupied as two tenements. Allington was the seat of Sir Thomas Wyatt, an accomplished scholar of the time of Henry VIII., and of his son Sir Thomas, who suffered for treason against Queen Mary. Of Westerham castle, near Sevenoaks, the keep is in a fine state of preservation, and the walls are particularly remarkable for the thickness of the wall, being 9 feet 9 inches thick, and having 9 storeys, as well as the battlements, which are of a very fine type. In the same county, Penshurst Castle, a very extensive and remarkable residence, is an octagonal keep, 85 feet in diameter, surmounted by a large quadrangular tower, 90 feet in diameter, with an elegant gateway flanked by two octagonal turrets, and near it stands a large circular tower, 60 feet high, surmounted by a spire, and having turrets near each angle. The walls are nearly 16 feet thick, and the platform of the keep is 3 feet thick. The castle contains a number of fine apartments, and has a very fine gateway. The interior has been much altered, and the building is approached by a long staircase; there are yet great remains of the chapel and other apartments.

The more remarkable and extensive castles in Kent are: Castle A.D. 1067; Maidstone, in the time of Henry VIII; Pembury, near Sevenoaks; and that of Hythe. The castle at Pembury contains a number of fine apartments, and has a very fine gateway. The interior has been much altered, and the building is approached by a long staircase; there are yet great remains of the chapel and other apartments. It has a very fine gateway. The interior has been much altered, and the building is approached by a long staircase; there are yet great remains of the chapel and other apartments. It has a very fine gateway. The interior has been much altered, and the building is approached by a long staircase; there are yet great remains of the chapel and other apartments. It has a very fine gateway. The interior has been much altered, and the building is approached by a long staircase; there are yet great remains of the chapel and other apartments. It has a very fine gateway. The interior has been much altered, and the building is approached by a long staircase; there are yet great remains of the chapel and other apartments. It has a very fine gateway. The interior has been much altered, and the building is approached by a long staircase; there are yet great remains of the chapel and other apartments. It has a very fine gateway.
The table below shows the population of Kent for each of the four enumerations made during the present century:

<table>
<thead>
<tr>
<th>Year</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
<th>Population Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1831</td>
<td>357,341</td>
<td>332,774</td>
<td>689,115</td>
<td>+15,837</td>
</tr>
<tr>
<td>1841</td>
<td>375,850</td>
<td>347,920</td>
<td>723,770</td>
<td>+34,655</td>
</tr>
<tr>
<td>1851</td>
<td>398,610</td>
<td>371,550</td>
<td>770,160</td>
<td>+46,390</td>
</tr>
<tr>
<td>1861</td>
<td>417,643</td>
<td>390,680</td>
<td>808,323</td>
<td>+38,163</td>
</tr>
</tbody>
</table>

The population of Kent has been increasing steadily since 1831, with the exception of a slight decrease in the period between 1851 and 1861. This decrease may be attributed to the effects of the Great Famine, which had a significant impact on the population of many rural areas in the mid-19th century.
196

The ages of the persons accused were—

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 years and under</td>
<td>13</td>
</tr>
<tr>
<td>16, and above 12</td>
<td>37</td>
</tr>
<tr>
<td>20</td>
<td>11</td>
</tr>
<tr>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>60</td>
<td>50</td>
</tr>
<tr>
<td>Above 60</td>
<td>7</td>
</tr>
</tbody>
</table>

Age could not be ascertained 13

Their state of instruction was as follows:

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Could neither read nor write</td>
<td>298</td>
</tr>
<tr>
<td>read and write imperfectly</td>
<td>398</td>
</tr>
<tr>
<td>read and write well</td>
<td>33</td>
</tr>
</tbody>
</table>

Had received superior instruction 3

State of instruction could not be ascertained 13

The number of electors qualified to vote for the county members in Kent at the registration of 1837 was, for the eastern division 7293, and for the western division 811, being about 1 in 30 of the whole population, and about 1 in 10 of the male population 20 years of age and upwards, as taken in 1831.

There are 20 savings' banks in Kent. The number of depositors in these, and the amount of their deposits as they stood on the 20th of November in each of the last five years, were as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Depositors</th>
<th>Amount of Deposits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1832</td>
<td>18,188</td>
<td>£531,018.00</td>
</tr>
<tr>
<td>1833</td>
<td>19,312</td>
<td>£613,854.00</td>
</tr>
<tr>
<td>1834</td>
<td>21,326</td>
<td>£629,084.00</td>
</tr>
</tbody>
</table>

The deposits of the last two years were divided in the following classes:

<table>
<thead>
<tr>
<th>Class</th>
<th>Depositors</th>
<th>Deposits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not exceeding £20</td>
<td>11,836</td>
<td>£52,438.00</td>
</tr>
<tr>
<td>£20 to £50</td>
<td>5,814</td>
<td>£179,253.00</td>
</tr>
<tr>
<td>£50 to £100</td>
<td>100</td>
<td>£164,325.00</td>
</tr>
<tr>
<td>£100 to £200</td>
<td>150</td>
<td>£96,281.00</td>
</tr>
<tr>
<td>£200 to £300</td>
<td>200</td>
<td>£67,862.00</td>
</tr>
<tr>
<td>£300 to £500</td>
<td>200</td>
<td>£23,533.00</td>
</tr>
</tbody>
</table>

Above £500 | 21,326 | £629,084.00 |

Education.—The following summary is taken from returns made to the House of Commons in the session of 1835:

<table>
<thead>
<tr>
<th>Type of School</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant schools</td>
<td>297</td>
</tr>
<tr>
<td>Number of infants at such schools</td>
<td></td>
</tr>
<tr>
<td>ages from 2 to 7 years</td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>1,325</td>
</tr>
<tr>
<td>Females</td>
<td>1,711</td>
</tr>
<tr>
<td>Sex not specified</td>
<td>1,479</td>
</tr>
<tr>
<td>Daily schools</td>
<td>1,488</td>
</tr>
<tr>
<td>Number of children at such schools</td>
<td></td>
</tr>
<tr>
<td>ages from 4 to 14 years</td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>24,241</td>
</tr>
<tr>
<td>Females</td>
<td>18,495</td>
</tr>
<tr>
<td>Sex not specified</td>
<td>6,469</td>
</tr>
<tr>
<td>Schools</td>
<td>1,693</td>
</tr>
<tr>
<td>Total of children under daily instruction</td>
<td>53,727</td>
</tr>
</tbody>
</table>

Sunday schools | 479 |

Number of children at such schools | |
| ages from 4 to 15 years | |
| Males | 15,791 |
| Females | 15,556 |
| Sex not specified | 6,176 |

37,523

Assuming that the population between the ages of 2 and 15 has increased in the same proportion with the whole population since 1821, when the relative population at different ages was last taken, and likewise assuming that the whole population has increased since 1831 in the same ratio as it did in the ten years preceding that date, we find by approximation that there were 127,096 children between the ages of 2 and 15 years in Kent in 1834, when these returns were obtained. Thirty-one Sunday-schools are returned from places where no other school existed, and the children
taught in there (1005 in number) cannot be supposed to have attended any other school. At all other places Sunday-school children are able to resort to infant schools, also, and there can be no doubt that many do so resort; but in what number or proportion duplicate entry is thus occasioned in the Parliamentary Returns there are no means of ascertaining. Ninety-two schools, containing 7209 children are returned from various places as being both daily and Sunday schools, and duplicate entry is known to have been thus fostered. Making due allowance for this circumstance, it may perhaps be fairly concluded that at the time the inquiry was made little more than half the children between the ages of 2 and 15 were receiving instruction of any kind in schools within the county.

Maintenance of Schools.

The schools established by Dissenters, included in the above statement, are—

<table>
<thead>
<tr>
<th>Infant schools</th>
<th>Daily schools</th>
<th>Sunday schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>271</td>
<td>1321</td>
<td>1731</td>
</tr>
<tr>
<td>901</td>
<td>410</td>
<td>401</td>
</tr>
<tr>
<td>15,486</td>
<td>7,048</td>
<td>7,438</td>
</tr>
<tr>
<td>11,973</td>
<td>3,971</td>
<td>7,048</td>
</tr>
<tr>
<td>9,588</td>
<td>3,140</td>
<td>3,498</td>
</tr>
<tr>
<td>12 containing 844</td>
<td>148</td>
<td>5,148</td>
</tr>
<tr>
<td>988 containing 31,410</td>
<td>349</td>
<td>1,085</td>
</tr>
</tbody>
</table>

The schools established since the inquiry of 1818 are—

- Infant and other daily schools: 844
- Sunday-schools: 1,085

No school in Kent appears to be confined to the children of parents belonging to the Established Church, or of any other religious denomination, such exclusion being disallowed in almost every instance, especially in schools established by Dissenters, with whom are here included Wesleyan and other together with schools for the children of Kentish Catholic parents.

Lending-libraries of books are attached to 53 schools in the county of Kent.

KENT, WILLIAM, an artist of moderate ability as a painter and sculptor, nevertheless one of considerable ability and influence as an architect and landscape-gardener, was born in Yorkshire, in 1664. Both his parentage and education were humble, and he was apprenticed to a conglomeration (presuming however that he had abilities which long to elevate him above that class) at 14 years of age. He established himself as a portrait and historical painter, and so far attracted notice that some gentlemen raised a contribution for the purpose of enabling him to go and study in Italy. Thither he arrived in 1710, and remained there several years, till he had the extreme good fortune to become acquainted there with the earl of Burlington in 1716. The noble patron not only brought home his protégé, and exercised all his influence and authority in matters of taste to recommend him to others, but took him under his own roof, where he remained till his death, April 12, 1748. How far Kent assisted his patron in his designs, the latter assisted him, is doubtful; but it is certain that he soon discovered greater capacity for architecture than he had done for painting; and if it be true that the designs for Halkam, the seat of the earl of Leicester, in Norfolk, emanated principally, if not entirely, from him, that single edifice alone proves him to have possessed very superior talent and taste as an architect, as well as an admirable plan, and possessing many graces and beauty of design. As architect and landscape-gardener he was in his proper sphere, and followed both pursuits with the true spirit of an artist. As a landscape-gardener, in fact, he forms an epoch, and is justly held various places as the father of the English style of gardening; for, as Walpole, who has not been niggardly disposed towards him, observes, he was 'painter enough to see the charms of landscape, bold and ornamental enough to devise, and born with a genius to work out a great system from the twilight of imperfect experiments.' Shakespeare's monument in Westminster Abbey will preserve his name as a sculptor, without all adding his reputation. It is therefore fortunate for it that there be such reformation without injury to its vital force.
deep cuts, which are from 100 to 300 feet below the sur-
face of the plain, and in which the rivers run. The plains
belonging to these rivers are narrow. Though this upland
region is sparsely populated with white inhabitants, its soil
is very fruitful, and as fertile as any part of the United
States. The western portion of the state is divided
between the Barrens and a country which is partially hilly.
The Barrens in their natural state are generally destitute of
trees and resemble the prairies which extend far north
of the Ohio River; but the level surface is diversified by
a considerable number of gently rising hills, called oak
knobs, on account of the trees which cover them. Though
this tract does not deserve the name which it bears, it is of
importance when compared with the Barrens. The Barrens
occupy chiefly the tract between the Green River and Cumberland River, on the borders of Tennessee.
On the north and west the Barrens are surrounded by a
more broken and hilly country, which gradually passes to
the low flats which skirt the Ohio and Mississippian rivers.
This tract is superior to the Barrens in fertility, but cannot
be compared with the upland region.

Rivers.—Along the northern boundary runs the Ohio,
which receives all the larger rivers that drain Kentucky.
The most eastern is the Big Sandy River, which rises in
Virginia on the western range of the Appalachian system,
called the Great Flat-top Mountains, and traverses that state in a north-west direction; where it approaches the bound-
dary, it turns suddenly to the north-west direction, and
very gradually rises to its mouth. Its course is state to be
nearly 200 miles, but it is not navigable to a great distance
from its mouth, owing to some falls which occur where it
is joined by the Clinch River. The Cumberland River rises in
Kentucky, and flows, with many windings, in a north-north
western direction for nearly 200 miles. Though it swells in
winter and spring to a considerable height, it has but little
water in the other seasons; the limestone rocks through
which it passes absorb the water which it brings down from
the mountains. The different branches of the Cumberland
River rise in the Laurel Mountains and form by their union
a considerable stream, which first flows north-west, then
west, and at last nearly due north. Its course is about 260
miles, and it is a very rapid stream which cannot be
navigable for small boats for 180 miles from its mouth at the
time of high-water, but at other times not higher up than Frankfort.
Green River rises in the western districts of the upland
region and flows for the greater part of its course westward,
then declines to the north-west, and finally to the north,
joining the Ohio about 50 miles above the mouth of the
Cumberland River. Its course is 280 miles, and it is navi-
gable for small river-boats to a great distance, but the
mouth is obstructed by falls and has not a mouth. Cumberland River rises in the valley between the Cumberland Mountains and the Laurel Mountains, where it is called Clove River; it traverses both the mountain and
upland region generally in a western direction, but on ap-
proaching the Ohio, it turns southward, and enters Ten-
nessee, where it makes a large bend to the southward, and
then re-enters Kentucky with a north-western course, con-
tinuing in that direction to its mouth, which is ten miles
above that of Tennessee River. It is above 500 miles in
length, and as its current is comparatively gentle, it offers
an easy navigation for sloops as far up as Nashville in Ten-
nessee, and it is stated to be navigable for river-boats 300
miles farther up. The Tennessee River flows only about 70
miles in Kentucky, and properly belongs to Tennessee.

[TEENESSEE.]

Climate.—The mean annual temperature seems to be
about 55°, and consequently 5° higher than that of London,
but the differences in the extremes of heat and cold are
much greater than in other parts of the United States. In
winter it is frozen hard on Christmas, and last three months. The thermometer
annually descends as low as 25°, and has been known to sink as
low as 14° of Fahr. Snow falls every winter, but not in
very great quantity. In spring the thermometer generally rises to
94° and 95°. In spring and autumn south-west winds prevail, and the weather is
delightful. The north-west wind produces great cold in
winter, but it seldom continues many days. Rain falls about the middle of spring, and in other seasons the weather is rather dry and constant. Some slight shocks of
earthquakes have occurred.

Productions.—The cereals which are most extensively
cultivated are Indian corn, wheat, rye, and oats, and the
two last-mentioned kinds of grain are said to cover better
than in the states on the shores of the Atlantic. Rye is
commonly used for the distilling of whisky. In the
western valleys are large quantities of timber, which is
extensively worked by the Negroes. Cumberland, and Mississippi rivers, cotton is raised in
abundance; and the tobacco which is grown in these districts
and the rich lands farther east supplies a considerable
article of exportation. Hemp and flax are generally culti-
vated. The slaves are the principal producers of these
products, from the former cider is made, and from the latter peac-
brandy, of which there is a great consumption. Cattle are
numerous, and great flocks of sheep pasture on the Barrens;
The breed of sheep has been improved by crossing them with
Spanish breeds of the adjacent countries.

As the greatest part of the country is covered with forests,
and the ground is well adapted to the culture of the
steps, and the different species of trees and shrubs, the
crop on the lands is annually increasing. The principal
kinds of trees are oak, chestnut, and elm.

Bituminous coal and iron abound in the north-western districts.
Iron ore also occurs in the districts lying farther east, but is not fully worked; but both kinds of
mineral can be generally diffused through the country: the salt-springs
are numerous, and many of them have been turned to
advantage. Salt petre exists in most of the coves which
occur through the state. The climate of Kentucky is partly
warm, and partly cool; the summers are generally short,
and the winters agreeably mild. The inhabitants enjoy
many of the advantages of an equable climate, and are
chiefly oak, chestnut, and elm.

Inhabitants.—The native tribes, which rendered the set-

tlement of this state so difficult and dangerous seventy years
ago, have entirely disappeared, and the population now con-
sists entirely of whites and negroes, and a mixture of the
two. The free population comprehended, according to the
census of 1830, 523,499 individuals, and the number of
slaves was 162,526, making a total of 686,040 souls. The
population of the state is limited by the necessity
of the inhabitants, and the pursuits, the number of persons engaged in manufactures
being comparatively very small. The most important manu-
facture is the construction of vessels, small and large, for
the navigation of the Ohio and Mississippi. Traders and
whiskey, are the most abundant in the Great Cave near Crooked Creek, the
length of which is stated to be not less than ten miles.

Political Divisions and Towns. Kentucky is divided into
83 counties, but as the country has only been settled for
about 70 years, it does not contain any large towns. Frank-
fort, the capital, is built on the banks of the Kentucky
River, which passes through it. It contains about 2000 inhabitants. Many vessels of
small size are built here. Lexington, which was formerly the
capital, contained (in 1830) above 6000 inhabitants, and
some manufactures of cotton, hemp, and paper. Transy-

vila, a barrier, and the capital of a small county which
is a division of the state of Kentucky. It was founded in 1798, and reorganised in
1815. A well-attended school of medicine and a school of
law are connected with this university. Louisville, on the
banks of the Ohio, is situated near the great rapids of
that river. As these rapids cannot be passed at low water,
and even at high water are dangerous, a canal has been
built along the bank, which begins above the rapids at Beargrass-

creek. The waters of the Ohio and Tennessee rivers below
at Beargrass bridge. This canal is 10 miles long. Louisville, which is the port of
the upland region and the place from which the produce of the
country is sent down the Ohio and Mississippi, contains
above 10,000 inhabitants, and has some extensive distilleries
for the production of spirits, which is the chief article of
trade. On the Ohio there is also Bardstown, with 1200 inhabitants;
it is the seat of a Catholic bishop and a Roman Catholic
college. Mayville, which has 2000 inhabitants and a con-
nection by steamboats with the upland region, is also on the
Ohio. Besides the literary institutions already mentioned, the
Methodists and Baptists have each a college, and the
Presbyterians have two.

Commerce.—The articles of commerce consist of different
kinds of foodstuffs, and of the wool, hemp, and tobacco. The
traffic is but slight, and the people of the interior are
mostly dependent on the navigation of the Ohio and Missis-
ippi rivers. The greatest part is sent down the Ohio and Mis-
sissippi to New Orleans, between which place and Loui-
ville steam-boats from 200 to 300 tons burthen and upwards
are constantly plying. Since the introduction of steam-
best navigation, the commerce of Kentucky has greatly increased.

**History.**—It is probable that this part of America once was the seat of a nation which had made some progress in civilisation. We may come to this conclusion from observing the extensive alterations which occur in several places, but especially on the banks of the Ohio, opposite Scioto River, and are now overgrown with high forest-trees. The first Europeans arrived in Kentucky in 1767, and the first permanent settlement was made in 1778, when Daniel Boone is said to have settled in Kentucky. It was then a part of Virginia, but the population had increased rapidly, Virginia consented to a separation, and in 1782, only seventeen years after the first settlement, Kentucky was admitted to the Union. The administration of the new state was settled in 1789. The legislative body consists of a senate and house of representatives. The representatives are chosen annually by all the free male citizens (negroes, paupers, and Indians being excepted) of 21 years of age, who have been two years resident in the state. The number of representatives may vary between 76 and 106, and it is now the number. The senate now consists of thirty-eight members, who are elected for four years, one-tenth of the members being chosen annually. The executive power is vested in the governor, who is elected for four years by all the citizens entitled to the suffrages. Kentucky sends two members to the senate, and twelve members to the house of representatives at Washington, D.C. The state is divided into United States, and Ward's Account of the United States.**

**KENYON, LLOYD, LORD,** the second son of Lloyd Kenyon, Esq., by Jane, daughter of Robert Eddowes of Eagle Hall in Cheshire, was born at Greddington in Flint- shire, on the 22d of December, 1747. He was educated at Tron- ton, an attorney in large practice at Nantwich in Cheshire, with whom he remained for seven years, during which time his diligence and shrewdness procured him so much of his master's favour that he expected at the end of his clerkship to be taken into partnership. In this expectation he was however disappointed, and thereupon determined upon being called to the bar. In 1754 he took chambers at the Temple, and became a member of Lincoln's Inn. While a student he devoted himself with great earnestness to the law, and attained that degree of virtue in his profession which few students ever find within the reach of their powers. His gentlemanly bearing, the strictness with which he observed the rules of professional connexion, and being of a character too honourable and independent to stoop to little artifices, many years passed before he obtained business. Still he laboured diligently and unceasingly, frequenting the courts both of common law and equity, and more especially the latter, and attending both circuit and sessions. His attainments in all departments appear to have been not only considerable, but vast, and he acquired by degrees the reputation of being a sound lawyer, and a neat and safe equity draftsman and advocate, and was raised by his eminent professional situation in the profession, he married Mary, third daughter of George Kenyon of Peck in Lancashire. He now began to rise into notice. In 1779 he was retained as one of the counsel for Lord Fitzroy in the state-prosecution of Shelton and others of the King's Bench, and in 1780, he was elected to the same year as leading counsel for Lord George Gordon. In April, 1792, on the accession of the Fox and Rockingham administration, he was appointed attorney-general. While holding this situation his conduct evinced that his heart was not interested in the fate of the party which he represented. On the death of the marquis of Rockingham he retired his office with Pitt as chancellor of the exchequer, and went out with the Shelburne administration in the spring of the year following. In December he was reappointed attorney-general, having through all the ministerial changes of the day asserted his independence. To the character of an orator he had no pretension, being a man of little imagination and hence, without either elegance, or occasionally with vulgarity. He was no scholar, and yet he would insert Latin words and phrases without point or taste in his discourse.

In 1784 he was raised to the office of master of the rolls, and created a baronet; and in May, 1789, he married Lord Kenyon, Baron Greville, and succeeded Lord Mansfield as chiefjustice of the King's Bench. His appointment to this important and dignified situation was at first highly disapproved by the profession generally. To the opinion of his brother judges he gave cause for not only of neglect, but almost of contempt; and whenever they ventured to differ from him (which only took place some half dozen times in fourteen years), he exhibited the same feelings which another person would do upon receiving a personal affront. To the baristers, both leaders and juniors, he was equally ungracious; and whenever anything escaped them in accordance with his sentiments, he castigated them in terms neither measured nor in character with the dignity which his situation required. To some lawyers he took a personal dislike, and allow no opportunity for modifying them to escape him; Mr. Law, afterwards Lord Ellenborough, was one of them.

With the press of business, Mr. Kenyon was in high favour; for he struck sternly and with indignation at those offenders who are the peculiar objects of popular dislike. But while doing so he frequently gave too easy credit to accusation, and allowed himself to punish often with a severity not sufficiently tempered. As an example of this he gave the case of Mr. Lawless, a solicitor, against whom some serious charges were brought. Before the case was adjudicated, Lord Kenyon ordered Mr. Lawless to be suspended from practising until his case was disposed of. In vain did he tell his friends in his office that he should soon be ruined. The charges against Mr. Lawless were found to be wholly without foundation; but the blow was struck, he sunk under the unmerited disgrace, and died of a broken heart. The views of the world we may mention the case met with similar treatment from him; and he threatened that if any prosecutions were fairly brought before him, and the guilty parties convicted, whatever might be their rank or station in the country, though they were the first ladies or gentlemen of a great family, they would be tried and executed themselves in the pillory. As a judge, he recognised no distinction between the gamblers of St. James's and the pickpockets of the Strand. Lord Kenyon exerted himself to the utmost to put an end to duelling, and he declared that he was convicted of having ordered his fellow-creature in a duel should suffer the course of the law; and he on more than one occasion directed the jury to that conclusion, but without success. Flagitious libels against individuals were punished by him with merited severe punishment.

But, of all writings, those partaking of the character of political libels were those against which he directed, with the most unfinching perseverance, all the terrors of the law. This was a more dangerous and delicate ground to tread upon, and in May, 1794, he was appointed attorney-general. In the same year, he was raised to the office of master of the rolls, and in 1795, to the office of solicitor-general. His appointment to this particular according to the view which they take with regard to the liberty of speech upon these points. Certain it is, that since the time of Lord Kenyon the practice of prosecuting for political libels has very much abated; nor could the pillory, as part of the punishment for putting forth opinions, however mischievous or absurd, be at this time tolerated.
Lord Kenyon trusted too much to the power of the terr-
ers of the law in guarding the rights of property from fraud or violence; and he inflicted death as the most ter-ible, and therefore the most preventive punishment. That this proceeded rather from a mistaken judgment—an ignorant, or, at least, a want of power to give sufficient weight to those circumstances which extal a more powerful influence upon human character, and not from a cold and singularitary disposition, the following anecdote may be considered as a proof.—He passed sentence of death on a young woman who were convicted of witchcraft, and he added: Lord Kenyon, in great agitation, cried out, 'I don't mean to hang you—Will nobody tell her that I don't mean to hang her?'

Indeed, in behalf of poor and ignorant offenders who were likely to be misled by coarse organs of knowledge, and blindly feelings were often displayed, and humble individuals of the working classes who were harassed by informers were sure to be shielded by him. A prosecution was commenced against a man for practising the trade of a tailor without having served him an apprenticeship, and an attempt was made to punish him for several acts done in the same day. 'Pro-
cut the man,' said Lord Kenyon, 'for different acts in one day! Why not sue for penalties on every stitch?'

Lord Mansfield, when chief-justice of the courts of King's Bench, used to say with un-
concealed contempt of the courts of nisi prius; but Lord Kenyon, with much wisdom, reverted to the antient strictness, and he expressed his determination to maintain it. 'I have,' he said, 'been in this profession more than forty years, and have been in the courts of law and equity; and if it had fallen to my lot to form a system of jurisprudence, whether or not I should have thought it advisable to estab-
lish different courts, with different jurisdictions, it is not necessary to say. But influenced as I am by certain prejud-
ced notions against inhabitants from other countries, with the systems found established, I find that in these, proceeding by different rules, a certain combined system of jurisprudence has been framed most beneficial to the people of this country, and which I hope I may be indulged in supposing has never yet been equalled in any country on earth. Our courts of law only consider legal rights—our courts of equity have other rules by which they sometimes supersed strict legal rules, and in so doing they act most beneficially; for the suit is not subject to, from whom we are not,' he said, in another instance, 'overturn the law of the land as it has been handed down to me.'

He wisely refused to allow the plain words of a statute to be refined away, however severe in its enactments, by any subtle sophistry. 'The arguments,' he said, 'that have been pressed upon us might have had some effect if they were addressed to the legislature; but we are sitting in a court of law, and must administer justice according to the king's laws and the land. Let an appeal be made to the legislature to amend the act: as long as it remains upon the statute-book we must enforce it.'

Mr. Charles Butler, after praising Lord Kenyon's intuit-
ive readiness, complains 'that he seldom exhibited the intervention of that discreet discernment, that though the decision was right, the ground of it was sometimes obscure, and the objections to it in the minds of the hearers were not always removed. This lessened the merit of his adjudications; but they are most deservedly held in the highest respect, and considered of the highest authority.'

At nisi prius he never brought a book with him into court to refer to. The extent as well as the arrangement of his notes needed no separate assistance. In performing the laborious duties of his profession he was dili-
gent and exact, and proceeded with so much expedition as to get through twenty-five or twenty-six causes to the entire satisfaction of the court.

He died in 1802. sorrow-stricken by the loss of his eldest
son, after having accumulated a fortune of 300,000l.

In his private habits Lord Kenyon was temperate, frugal even to parsimony, and an early riser. For his happy-
ness in his home he was most deeply attached to his family. He entirely disregarded the court dress; and his speech, in and out of the duchy of Wirtenberg, 21st December, 1571. He was a seven months child, very weak and sickly, and survived with difficulty a severe attack of smallpox. His parents, Henry Kepler and Catherine Guldenmann, were of noble descent, although their circumstances were far from affluent. The father, at the time of his marriage, was a petty officer in the service of the duke of Wirtenberg, and joined the army in the Netherlands a few years after the birth of his eldest son John. Upon his return to Germany he learnt that an acquaintance for whom he had lucratively been security had absconded, and had left him the unexpected charge of liquidating the bond. This circumstance obliged him to dispose of his house and nearly the whole of his business, and to pocket what had accumulated during his time. Young Kepler had been sent in the year 1577 to a school at Elmdingen, and he continued there until the occurrence of the event to which we have just alluded, and which was sufficient to render his stay in his parents' house uncon-
venient. He was then, instead of being apprenticed to a tailor, it appears that he was taken home and employed in mental services until his twelfth year, when he returned to school.

In 1586 he was admitted into the monastic school of Maul-
brrown, where the cost of his education was defrayed by the duke of Wirtenberg. The regulations of this school required that after remaining a year in the superior class the students should offer themselves for examination at the college of Tübingen for the degree of Bachelor. On ob-
aining this degree they returned with the title of veterinarian, and were admitted as resident students at Tübingen, where they proceeded in about a year to the degree of Master.

During his undergraduate Kepler's studies were much
influenced by his teacher, who furnished him with a book so nearly proved fatal to him during childhood, as also to
the dissensions between his parents, in consequence of which his father left his home, and soon after died about the

Notwithstanding the many disadvantages he must have
encountered, and which his father's death added to, he suc-
ceeded in completing his studies in the University of Tubingen, which had held his domestic affairs in

Kepler took the degree of Master in August, 1591, attaining the second place in the annual examination. The

first volume of his works was John Hippolytus Brentius.

While thus engaged at Tübingen, Kepler's astrono-
mical knowledge of Grätz, the chief town in Styria, became vac-
ated by the death of George Stadt, and the situation was offered to Kepler, who was forced to accept it by the authority of his tutors, although he had been exhorted by his friends to
abstain from the post, and to pursue a more peaceful life. His

period he had given no particular attention to astronomy. This must have been in the year 1593-4. In 1596 he pub-
ished his 'Mysterium Cosmographicum,' wherein he de-
tails the many ingenious hypotheses which he had success-
ively formed, examined, and rejected, concerning the

num ber, distance, and periodic times of the planets; and finally, proposes a theory which he imagines will account for a satisfactory manner for the order of the heavenly bodies. Kepler's system rests upon the fancied analogies between the relative dimensions of the orbitals of the planets and the diameters of circles inscribed and circumscribed about five regular solids. In 1597 Kepler married Barbara Muller

of Muehlebach, a lady who, although two years younger than him, having given him two sons, who were afterwardsencers, his farm, which he had sold, to the great inconvenience of Tycho in his calculations. Upon the death of Tycho, which happened in the month of October of the same year, Kepler succeeded him as principal mathematician to the

emperor, and, besides fulfilling all the duties of his ex-

clations, not merely for the pecuniary assistance and hos-
pitality which himself and family so often experienced from Tycho, and upon which at one period they entirely de-
dependence, but still more for the sound advice which he gave him to abandon his groundless opinions and to

cease to make the deduction of causes from their observed effects,—advice which Kepler greatly needed, and which
he had adhered more closely, his fame would have been even greater than what it now is. It is to be regretted that upon several occasions the conduct of Kepler towards Tycho led to a breach between the parties. It appears to be attributable rather to the impertinence of Tycho's than to any want of gratitude towards his benefactor. He has been said that Kepler was appointed by Tycho as his assistant, and that the cause of the breach was a difference of opinion about the elliptic nature of the planetary orbits. The object of these calculations was the formation of new astronomical tables generally, which were to be called the Rudolphine Tables, in honour of Rudolph the then emperor of Bohemia, who had promised, not merely to support Tycho in his researches, but to provide Kepler with a liberal salary; neither of which his circumstances ever permitted him to fulfile. The part more particularly allotted to Kepler was the reduction of Tycho's observations relative to the planet Mars, and to this circum-
stance is referred that difficulty concerning the equilibria of elliptic orbits, and that of the equable description of areas. The pecuniary difficulties however in which he found himself almost incessantly involved in consequence of the non-
remitment of his salary, greatly retarded the progress of his labours, and obliged him to seek a livelihood by casting na-
vities. The Rudolphine Tables were therefore postponed, and he applied himself to works of a less costly character, from which he might expect to derive more immediate re-
turns. To this immediate consequence of these researches of Astronomy; in 1604 his 'Supplement to Vitellion;' in 1605 'A Letter concerning the Solar Eclipse,' and in 1608 'An Account of the New Star which had appeared in the constellation of Cassiopeia,' added to the reputation of "The Sidereus Nuncius." None of these things, however, contributed to the establishment of the basic principles of Kepler's Law of Gravitation. 'The Epitome, or Summary of the Rudolphine Tables,' which was published in 1621, was the first work in which the general law of the motion of the planets was enunciated. It was entitled 'The Epitome,' as being a summary of the Rudolphine Tables, which had been published in 1596. 'The Rudolphine Tables' were a collection of astronomical tables, compiled by Tycho Brahe, which were intended to provide a means for predicting the positions of the planets. The work was originally published in 1596, but the definitive version was completed by Johannes Kepler. The Rudolphine Tables were based on Tycho's observations, which were more accurate than those of his predecessors. Kepler worked for several years to transform Tycho's observational data into a coherent and predictive system. The completion of the Rudolphine Tables was significant because it allowed for the prediction of planetary positions at any time in the future. This was achieved by Kepler's development of the laws of planetary motion, which he described in his work "Astronomia Nova." The Rudolphine Tables were subsequently expanded and improved upon by other astronomers, including Galileo and later by Isaac Newton. Kepler's work in the Rudolphine Tables was a major step forward in the development of celestial mechanics and laid the groundwork for Newton's laws of motion. The Rudolphine Tables were not limited to the planets; they also included tables for the sun, moon, and planets of the outer solar system. The Rudolphine Tables were used by astronomers for several centuries, until they were replaced by more accurate and comprehensive tables. However, Kepler's laws of planetary motion laid the foundation for the development of modern astronomy and the understanding of the solar system.
to obtain a liquidation of his claims upon the imperial treasury, but the fatigue and vexation of his fruitless journey brought on a disease which terminated his life in the early part of November, 1630, and in his 59th year. His body was interred in St. Peter's churchyard at Ratisbon, and a simple inscription, which has long since disappeared, was placed on his tombstone. Upon the character of Kepler, upon his failures, and on his success, Delambre has pronounced the following judgment:—"Ardent, restless, burning to distinguish himself by his discoveries, he attempted everything; and having once obtained a glimpse, no labour was too hard for him in following or verifying it. All his attempts had not the same success, and, in fact, that was impossible. Those which have failed seem to us only fanciful; those which have been more fortunate appear sublime. When in search of that which really exists, he has sometimes found it; when he devoted himself to the pursuit of a chimera, he could not but fail; but even there he unfolded the same qualities, and that obstinate perseverance that must triumph over all difficulties but those which are insurmountable."

The following is a list of Kepler's published works. His manuscripts were purchased for the library of St. Petersburg, where Euler, Lexell, and Kraft undertook to examine them and to select the most interesting parts for publication, but the result of this examination has never appeared.

List of Kepler's published works:—

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<tr>
<td>Ein Calendari, Gratia, 1594</td>
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<tr>
<td>Prodrum Diversit. Cosmograph., Tübingen, 1596, 4to.</td>
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<td>De fundamentis Astronom., Prægio, 1602, 4to.</td>
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<td>Paralipomena ad Vitellionem, Francofurti, 1604.</td>
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<td>Antwort an Rösin, Prægio, 1609, 4to.</td>
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<td>Astronomia Nova, Prægio, 1609, fol.</td>
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<td>Tertiis Interveniens, Frankfurt, 1610, 4to.</td>
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<td>Dissertatio cum Nuncio Sidereo, Francofurti, 1610, 4to.</td>
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<td>Steinae seu De nivo sexangulii, Frankfurt, 1611, 4to.</td>
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<td>Dioptrica, Francofurti, 1611, Vom Geburts Jahre des Heylandes, Straßburg, 1613, 4to.</td>
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<td>Respons. ad epist. S. Calvinii, Francofurti, 1614, 4to.</td>
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<td>Eclips Chromicum, Frankfurt, 1615, 4to.</td>
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<td>Nova Stereometria, Linæi, 4to.</td>
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<td>Comets, Aug. Windelæc., 1619, 4to.</td>
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<td>Epistola Astron. Copern. Libri i. ii. iii., Lentizi, 1618, 8vo.</td>
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<tr>
<td>Discours von der grossen Conjunction, Linæi, 1623, 4to.</td>
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<td>Chilias Logarithmarum, Marpurgi, 1624, fol.</td>
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<td>Supplementum, Lentizi, 1625, 4to.</td>
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<td>Hyperaspistes, Francofurti, 1625, 8vo.</td>
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<td>Comets, Aug. Windelæc., 1619, 4to.</td>
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<td>Selenographia, Ulmeæ, 1627, fol.</td>
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<td>Resp. ad epist. J. Bartschi, Sagani, 1629, 4to.</td>
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<td>De anni 1631 Phænomenis, Lipsæ, 1629, 4to.</td>
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<td>Terretii Epistolum cum Commentatiiæ, Sagani, 1630, 4to.</td>
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<td>Ephemerides, Sagani, 1630, 4to.</td>
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<tr>
<td>Summorum Tabullus Astronomiæ, Francofurti, 1634, 4to.</td>
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<tr>
<td>Tabulae Manuales, Argentoratæ, 1709, 12mo.</td>
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(Abridged from the Life of Kepler, in the 'Library of Useful Knowledge,' with occasional reference to the 'Historia du Monde de Laplace, and other works."

A splendid edition of Kepler's "Correspondence" was published under the auspices of the Emperor Charles VI., in 1718, by M. G. Hansch. It is entitled 'Epistola ad J. Keplerum,' &c., and the title-page has no place of publication, but the preface is dated from Leipzig. It contains a Life of Kepler.

KERMAN. [Persia]

KERMANSHAW. [Persia]

KERMES MINERAL, a particular sulphur of antimony, formerly much, but now little used in medicine. Various processes, some in the humid and others in the dry way, have been proposed for obtaining it.

One of the best appears to be that of boiling six parts of powdered esopus sulphur of antimony in a solution about twenty times its weight of crystallised carbonate of soda in ten times its weight of water. After an hour's ebullition, the liquor is to be strained while hot, and allowed to cool very slowly, during which the Kermes Mineral separates in the state of a brownish-red powder, which, after due washing, is to be dried with a gentle heat.

According to Rose it is composed of sulphur 38.48 and antimony 61.52, which are very nearly in the proportion of 25 equivalents of sulphur 40 + one equivalent of antimony 60.

KERDON. [Persia]

KERDONON, a genus of rodents, bearing a good deal of resemblance to that of Cavia, but differing both in the locomotive and masticatory organs, established by M. F. Cuvier. Dental formula:—Incisors 2, molars 4—4 = 20.
The Dowlus is situated on the Cork boundary, opposite the town of Ballinaskelligs, a part of which is described as "The Vale," and lies in the middle of the county, between the south-west and the south-east, nearly parallel to the northern shore of the estuary of Kenmare. This estuary is a continuation of the valley of Sneem, which is situated on the eastern side of the mountains. The mouth of the valley is a sheet of water, which is three miles in length by three-quarters of a mile in breadth, is enclosed on all sides by mountains from 2000 to 3000 feet in height, except at one point, towards its eastern extremity, where it discharges into the waters of a torrentious course of three miles, called the southern declivities of Glenéa and the precipitous side of Turk, which forms a part of the group of the Mountains. The valley of Sneem, which has a well-vegetated soil, forms a plain of considerable extent between the southern declivities of Glenéa and the precipitous side of the Turk mountain. The hills of the group are separated from each other by a broad valley, which is a continuation of the valley of Sneem.

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to a height of 2550 feet. The castles of Dunbo and Ross, and the old churches of Aggela and Muckeens, which are all situated on the eastern shore of the Lower Lake, add considerably to the interest and extent of the surrounding scenery. The waters of the lakes of Killarney discharge themselves at the northern extremity of the Lower Lake through the river Lough, which, by a course of twelve miles into the head of Dingle Bay.

The remainder of the plain between Killarney and the mountains south of Tralee is drained by the river Main, which rises near the Cork boundary, and after passing the town of Killarney discharges itself into the head of Dingle Bay, where it forms an estuary called Castlemain Harbour.

The valley of the Main is bound on the north by the great mountains, whose highest points rise successively from the sea by a series of concave sides until they reach a distance of about twelve miles at the highest point of the range. The sides of the mountains are thickly wooded.

The Crane is a tributary of the Main, which is joined by the lower course of the river Finian, near the town of Killarney, and the lower course of the river Tralee near the town of Tralee. The river Main is joined by the lower course of the river Dingle, near the town of Dingle, and the lower course of the river Feale, at the town of Tralee.

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Cork, the main component being a red or grey conglomerate and sandstone supporting flakes of silicious fragments, and in which the low districts by flaggy limestone. It is observed, that the arms of the sea which penetrate this county lie within the limestone troughs, that rock appearing at the upper extremity of each, while the promontories forming their sides consist of sandstone and conglomerate. The limestone of these basins is often considerable, & is used for flagstones.

The upper strata of this tract consist chiefly of an indurated clay and lias with ochreous partings covering thin beds of anthracite or coal: these on the eastern extremity of the district have been found containing coal and bituminous claeblende similar to that of Kilkenny, and have been wrought to a considerable extent, but not in this county.

The mountains of Glanbehy abound with iron-ore, which was formerly smelted in considerable quantities at Blackstones, in woks erected by Sir William Petty, but, the supply of timber having failed, these works were given up about the year 1750. An iron bloomery was also worked at one time at Killarney, the neighbourhood of which, as appears by some verses in Nennius, has been celebrated for steel of the best quality. The mountains of Mounthawk and Rock Island in the Lower Lake, copper-mines have been worked occasionally since about the year 1750, but are now discontinued. Lead-ore has also been found in considerable quantities in the vicinity of the lake. Copper-ore has been found at Ardfert and in Glanerougbt. Works for extracting copperas were at one time in operation near Castle Island, but are now given up. The slate quarry in Valentiain, the working of which is carried on by the Knight of Kerry, produces quarry to the amount of 1800 tons annually, and a small amount of 500f. annually. The flagging, which is of a very superior description, is bought at the quarries by a stone-merchant, who transports it to London, where there is a demand for it which, it is expected, will be limited only by the price of production. In the apportion of the limestone, it might be that these flags surpass every other description of flagging in use in London.

The soil of the south-western district, where not encumbered with bogs, is an adhesive loam, fit for the reception of corn crops, and formed by the decomposition of the clay-slate rock, which, from the nearly vertical position of its strata, is readily disintegrated by the weather. Up to the year 1810 the plough was totally unknown in the more western parts of this district, and spade cultivation is still practised to a considerable extent. The improvements on the estates of Lord Headly and the Marquis of Lansdowne have latterly given an impetus to agricultural labour throughout the southern parts of the county, which has caused a marked alteration for the better in the farms and dwellings of the district. The soil of the middle district is a rich loam, which produces excellent crops of grain, and when laid down in pasture yields butter of prime quality. The northern district has a stiffer soil, more retentive of wet, and inclined to run to rushes. It is also grazed to a considerable extent by dairy farmers, who find a market for their butter in Tralee. Cider is made here in large quantities, and of a superior quality. The condition of the peasantry however is inferior to that of the inhabitants of the southern districts. The average rate of labourers' wages in the south is 6d. per day, and in the northern parish 5d. to 6d. The system of farming, except where the example of the great proprietors has caused some change in the rotation of crops, is not judicious. Green crops are generally unknown, and grass seeds are little used. The hay mows are very small, but well formed, gool milkers, and easily fattened. They are now chiefly met with in the mountain districts: the dairy farms and low pastures are stocked with the ordinary cattle of the country. A breed of small ponies is peculiar to Kerry; they are too light for business purposes, but answer for the saddle very well, and are sold in considerable numbers throughout the country. The peasantry of the southern districts are distinguished by the darkness of their complexion, and a peculiar cast of features which has been generally thought to indicate a Spanish origin.

The chief trade of the county consists in exports of agricultural produce, chiefly oats and butter. The returns are defective, but it is estimated that 100,000 firkins of butter are annually sold in the markets of Tralee and Killarney. The manufacture of linen is carried on with some activity in the neighbourhood of Dingle, the linens from which place were formerly in much repute. There is also a general manufacture of coarse woollens throughout the county for home consumption.

In 1836 the fisheries on this coast gave occasional employment to 1 decked boat, 44 half-decked boats, 421 open sail-boats and 610 open row-boats, manned by 6911 fishermen.

The condition of the fisheries has been gradually declining for the last thirty years: many of the men have emigrated and left their families mendicants. The fish caught are turbot, haddock, gurnet, pollock, plaice, soles, dores, mullet, mackerel, burns, пёчехот, &c., with a plentiful supply of oysters, crabs, lobsters, and scallops. Great numbers of seals formerly frequented the river of Kenmare and the caves of Ballybunion; but they have latterly become more scarce, and are now rarely caught.

Kerry is divided into the barons of Dingle and Tralee, the latter of which extends to the south-west, containing the town of Cahirciveen, population (in 1831) 1192: Dunkerron, occupying the remainder of the peninsula, containing only hamlets: Glanerougbt on the south-east, containing the town of Kenmare, population, 778: Tralee, containing the town of Kilmanary, 1506; Magonihy, in this parish consists of 630 houses, 360 males, 270 females. The fishery of the baron of Dingle consists of mackerel, herrings, and cod. In the baron of Tralee, the principle fishery is that of turbot, of which large quantities are caught. The catches of turbot in the barons of Dingle and Tralee, has, however, greatly declined in the latter part of the last century, and especially since the year 1831.

I. Table of Population.

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<tr>
<td>1792</td>
<td>Estimated by Dr. Beaufort</td>
<td>19,395</td>
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<td>107,000</td>
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<tr>
<td>1813</td>
<td>Under Act of 1812</td>
<td>31,749</td>
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<td>178,622</td>
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<tr>
<td>1821</td>
<td>Under Act 55 Geo. III. c. 120</td>
<td>35,597</td>
<td>38,059</td>
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<td></td>
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<td></td>
<td></td>
<td>107,617</td>
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<tr>
<td>1831</td>
<td>Under Act 1 Will. IV. c. 19</td>
<td>41,294</td>
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<td>34,043</td>
<td>4,621</td>
<td>6,360</td>
<td>131,060</td>
<td>131,430</td>
<td>263,126</td>
</tr>
</tbody>
</table>

Irish parliament: two for the county, and two for each of the baronies of Tralee, Dingle, and Ardfert. It is represented in the imperial parliament by two county members, and one for Tralee borough. The county constituency in 1836 was 1212. The assesses are held at Tralee, and quarter sessions at Tralee and Killarney; there are bridewells at
Killarney, Dingle, Kenmare, Cahirciveen, Castle Island, Miltown, Waterville, and Tralee, had been the total number of persons committed for trial to the county goal in 1836 was 747, of whom 503 were convicted. Of the offenders, at the time of their commitment, 283 males and 3 females could read and write, 123 males and 6 females could read only, and 243 males and 47 females could neither read nor write. The constabulary force in 1835 consisted of 7 first class constables, 26 constables, 130 sub-constables, and 11 horse; the total cost of the establishment for that year was 5818l. 5s. 6d., of which 2830l. 5s. 3d. was chargeable against the county. The county, however, and fewer police, are at Tralee, and there is also a fever hospital at Killarney, and there are dispensaries, supported by voluntary contributions and grand jury presentations, in all the minor towns. The district town is at Limerick; the initial session of a great county, like that of Kerry county is 3930l. 16s. 7d. Kerry is entirely within the diocese of Ardfert and Aghadoe. The proportion of Roman Catholics to Protestants in this diocese is nearly 40 to 1. The proportion per cent. of the population under daily instruction is 463s., in which respect this diocese stands last among the 32 dioceses of Ireland. There is however a very general turn for classical learning among the peasantry, many of whom have a tolerable knowledge of the Latin language.

Kerry, or the south-western portion of the county, had its name from Ciar, the son of Fergus, king of Ulster, and signified Ciar's kingdom; and originally formed part of the kingdom of Desmond, or South Munster, of which the MacCarthy's were the acknowledged lords. Desmond, and the county of Kerry, being of this country, having invited the assistance of Raymond le Gros, one of the early Anglo-Norman adventurers, to suppress the rebellion of his son Cormac, granted him as a recompense for his services a large tract in the north of the county round Lixnaw, where Raymond, about A.D. 1172, settled his son Maurice, from whom the Fitzmaurice's, lords of Kerry, draw their pedigree, and the barony of Clanmaurice takes its name. Soon after, the Fitzgeralds established their influence in that part of the country, whereby they rose to such power on the downfall of the MacCarthys that in 1295 Thomas Fitzmaurice Fitzgerald was captain of all Desmond, comprising the counties of Cork, Waterford, and Kerry, and lord justice of Ireland. He left two sons, John, afterwards created Earl of Killarne, and Maurice, created earl of Desmond, with a royal jurisdiction over the palatinate of Kerry, A.D. 1329. The liberty of Kerry so erected included the entire county, with the exception of the church lands, for which the king appointed the sheriff. The lords of the palatinate had their own courts, judges, and great law officers, the only distinction between the liberty and a regular county being that the executive was administered by a seneschal instead of a sheriff. The possession in the counties in question of a direct control drew the succeeding earls of Desmond into frequent contempt of the royal authority, for which their territories were on several occasions wasted by the king's forces. The rebellion of Gerald, the sixteenth earl in the line of his family, in 1710, caused a general suppression of their authority and confiscation of their estates. The English knights and gentlemen who had grants from the queen of the forfeited lands in the county were—Sir William Herbert, Knt., 13,276 acres; Charles Herbert, Esq., 3768 acres; Sir Valentine Browne, Knt., 6369 acres; Sir Edward Denny, Knt., 6000 acres; Captain Conway, 5200 acres; John Chapman, Esq., 1434 acres; and John Holly, Esq., 4422 acres.

On the breaking out of the rebellion of 1641, the native Irish made a sally, and laid siege to the castle of Tralee, to which a great number of English families had fled. After a siege of six months the place surrendered, and the Irish remained in possession of the country till 1652. When Ludlow, with an army of 4600 foot and 200 horse, again reduced the place. Extensive confiscations of the estates of the native Irish followed. Among the new proprietors was Sir William Petty, who obtained a large grant of lands in the neighbourhood of Kenmare, and commenced the melting of iron and the manufacturing of gunpowder in a vigorous while timber lasted. A colony of Protestants was planted by Sir William Petty round the head of Kenmare river, who were attacked by the native Irish in 1688, and compelled to abandon their possessions. A detachment of King William's army, under Braddock, entered the county in 1691 and compelled the Protestants to abandon their possessions. The confiscations consequent on the last rebellion amounted to 90,116 acres, of an estimated total value of £100,000. At that time of £1710 the coast was harbored by French privateers which led to the erection of a small fort on Valentia Island. The principal proprietors present are the Marquis of Lansdowne, in whose county, the Fitzmaurice and Petty estates centre; Lord Kenmare, the representative of the Brown family; Lord Headly,Lord Ventry, and the Fitzmaurice estates.

Kerry contains several monuments of a very remote an antiquity, of which the most remarkable are the Cylopean stone fortresses of Cahirciveen, Staitigue, and Cahir Donnell; and the sepulchral stones with ogham inscriptions in the neighbourhood of Dingle. Some of the early Christian sepulchres of the sixth and seventh centuries, are still standing on the greater Scellig Island, at Ventry, and at Smerwick. There is a round tower at Rattoo, one in an island in Loch Currams, part of another at Dingle, and a fourth formerly stood near the cathedral of Ardfert. There are also the remains of thirteen religious houses and thirty feudal castles.

The county expenses are defrayed by grand jury presentations. The amount in 1835 was 59,321l. 4s. 7d., of which 19,672l. was for public roads, buildings, and public improvements, and 18,374l. for the general county charges, and 11,279l. 4s. 7d. for roads charged specially to the several baronies.


KEY, KERSEY, KESWICK, KESTREIL, KERTSH. [WOOLLEN MANUFACTURES.]

KERTSH. [CRIMEA.]

KERSEY. [SURREY.]

KESWICK. [CUMBRIAN.]

KEETCH. [MUSHROOMS.]

KETERING. [NORTHAMPTONSHIRE.]

KEUPA. [OWLS.]

KEUPER. [GEOL.]
his father, who was a native of Saxony, held the appointment of physician at one of the hospitals. His aversion to medical and anatomical studies determined him to enter the army in preference to following the profession chosen for him; but after serving in two campaigns against the Pus- sian and Turks, he determined to serve in the army only as a military engineer, in which capacity he quickly won the regard of his superiors. In 1784 he was appointed consul-general at Smyrna, but had hardly arrived there when he died (March 20). Although his Fables reached a second edition in his lifetime, they did not attract much notice until a complete edition of all his pieces appeared in three volumes in 1799, with a memoir of the author and his name, which last had not been previously given to the public. Since then they have been reprinted several times, and have acquired very great popularity.

KHERASKOV, MICHAEL MATVIEVITCH, born October 23, 1753, was a Russian poet of considerable celebrity in the last century, although his reputation has since declined. His epic poem in twelve cantos, entitled the 'Rossiada,' which first appeared in 1783, celebrates the liberation of Russia from the yoke of the Tartars in the reign of Ivan Vassilievitch. Although hardly rising to the dignity of an epic, this production possesses much interest of narrative, and several very striking scenes and descriptions.

'Vladimir,' his second poem of the same class, is in eighteen cantos, and was first published in 1786. Besides these he wrote numerous other works, both in prose and verse, including an imitation of Corneille's 'Cid,' and some other tragedies and dramatic pieces. He died September 27, 1807, aged 74.

KHerson (Cerveron, or Nikolaieff), a government of European Russia, lies 10° 15' and 39° 15' N. lat., and 29° 10' and 35° 30' E. long. It is bounded on the north-west by Podolia, on the north by Kieff, on the north-east by Putilava, on the east by Ekaterinospol, on the south-east by Taurida, on the south by the Black Sea, and on the west by Bosserabia. Its area, according to Harms, about 1799, is 25,347 square miles, others make it only 19,000; but Horschelmann (1835) makes it 34,964 square miles.

Its extreme length from east to west is about 250 miles, and its breadth from north to south about 100 miles for one-third of the length from west to east, and for the other two-thirds almost 180 miles. The province, which consists of an immense plain, lies between the Dniester and the Dniester. A branch of the Dnieper range traverses it for a short distance on the north-east, and on the south-west a dignity of an epic, this production possesses much interest of narrative, and several very striking scenes and descriptions. 'Vladimir,' his second poem of the same class, is in eighteen cantos, and was first published in 1786. Besides these he wrote numerous other works, both in prose and verse, including an imitation of Corneille's 'Cid,' and some other tragedies and dramatic pieces. He died September 27, 1807, aged 74.

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duce from ten to twenty fold, even without mulures, if after being five or six years it is suffered to lie fallow for an equal time. But the inhabitants dislike agriculture, and prefer the breeding of cattle, so that they never raise corn enough for their own consumption. Almost every two years swarms of locusts desolate the country, but they seldom come further than Khorassan, and about the middle of the Dnieper. Hemp and flax are grown only for domestic consumption. Tobacco (some of the best in the empire), mustard, and saffron are articles of commerce. There are several large reservoirs of the vine, and the wine has been proved of late years. Horticulture is much more attended to than agriculture. The forests, as we have said, are confined to the northern province, and to the vicinity of Elisabethgrad ; the latter for a long time furnished almost all the timber required for building the Black Sea fleet, which is now greatly thinned. The banks of the rivers, especially of the Dnieper, are covered with strong reeds, which are used both for thatch and for fuel. For want of wood, hardly any habitations are seen but thatched clay huts; many of the inhabitants dig for themselves habitations in the earth, choosing particularly the antient tumuli, with which the plain is covered. Of tame animals the most common is the sheep. The wool of the native breed is rather coarse, but of late years, great numbers of Morinos have been imported, and there is no other province that has so many sheep of the improved breed. The three provinces of Ekatérinoslav, Taurida, and Kherson have now 500,000 Merinos. Oxen and buffaloes are numerous, and used for draught purposes, (of which many are small), but very spirited and swift-footed. Wild animals of all kinds abound, especially wolves and wild-cats, which last are formidable beasts of prey. The fields are covered with burrs, grey partridges, ortolans, snipes, &c. Besides locusts, the country is infested by large rats, which come from Taurida. There are great numbers of water and other snakes, scolopendra, whose bite is as venomous as that of the Tarantula, incredible numbers of lizards, and serpents of all sorts. The fisheries on the sea-coast and in rivers are very important. The minerals are, fine potter's clay, freestone, slate, chalk, tale, saltpetre, and garnets. The manufactures are of little importance; some however have been introduced into Kherson and Odessa, which, though founded only in 1796 by the Duke of Richelieu, is the staple place for the commerce of all Southern Russia. [On this subject.]

The inhabitants, who are estimated at 607,000, consist of Great and Little Russians (among the latter are many Cosacks), Poles, Moldavians, Roumanians, Bulgarians, Tartars, Greeks, and Jews, all of whom speak Russian, except the Greeks. The Christian Russians are divided into four main classes, namely: Greek, Greek Catholic, Armenian, and Russian; even the Greeks of the Bug have renounced their nomadic life, follow agriculture, and have fixed habitations. There are in this government 35,000 foreign colonists, chiefly German, in fifty-six colonies, possessing (in 1836) 284,942 desseins (866,000 acres). There are also here the usual number of academies. The Greek Christians are subject to the Archbishop of Ekatérinoslav, Kherson, and Taurida, who resides at Ekatérinoslav, where his cathedral is. In Kherson he has 367 parishes. [Unknown.]

KHOIÁSIN. [PERSIA.]

KHOIÁSIN I., called Cshoeres by the Greek writers, but more commonly known in the East by the name of Nushirwan, 'noble soul,' succeeded his father Koshan in the kingdom of Persia. Koshan, who was killed at the battle of Marvdasht, had engaged in war with Justinian, the emperor of Constantinople; but Khoiásin, shortly after his accession, concluded a peace with Justinian, on the payment by the latter of 10,000 pounds of gold. Khoiásin diligently employed this interval of rest in strengthening the internal affairs of his kingdom; he put down the corrupt officers and magistrates, who had been appointed during the reign of his father, were removed; justice was impartially administered in every part of the empire; and the position of Mashhad, which had been desolate, was immediately restored. He divided the empire into forty great provinces of Assyria, Media, Persia, and Bactria, and established a vassal power in each, by the authority of the great magnates. In the course of six or eight years he extended his dominions as far as the Indus, and compelled the nomadic hordes, who had taken possession of the northern provinces of the empire, during the reign of his father, to repass the Oxus and withdraw to the central plains of Asia.

Though Khoiásin was successful in his wars with the people of Asia, he beheld with concern the conquests of the Persians in Hatti and Asia minor. At this time Justinian should acquire sufficient power to attack the Persian dominions, he collected a large army, and, in violation of the truce that still subsisted, he invaded Syria in 540. He had stationed a number of troops on the confines; the principal cities were plundered by the Persian troops, and Antioch, the capital, was taken after a short but vigorous resistance. On his return, Khoiásin founded, at one day's journey from Ctesiphon, a city, which he called Khoiásin, which he afterwards caused to be demolished, as he had taken in his invasion of Syria. In the following year Belisarius was recalled to defend the East; and his superior military skill enabled him, with an army far inferior to the Persians both in discipline and numbers, to prevent Khoiásin from extending his conquests. In 542 Belisarius was recalled to Constantinople, and degraded from all his employments; and the generals who succeeded him were easily defeated by the Persian troops. The war continued to be a part of the peace, and the annual payment by the latter of 30,000 pieces of gold.

This peace however was only preserved for ten years. The lieutenants of Khoiásin had subdued the province of Yemen in Arabia, and compelled the Abyssinians, who had possessed the supreme authority for many years, to draw from the country. The Abyssinians were the allies of the emperors of Constantinople; and Justinian, who had succeeded Justinian, having entered into an alliance with the Persians, could not afford to overlook the cause of his allies. But his efforts were unsuccessful; the troops were everywhere defeated, and the province of Syria was again plundered by the Persian soldiers. Justin was obliged to resign the sovereignty, and his successor Tiberius obtained a truce of three years, which time was digested by Tiberius in collecting an immense army from all parts of the empire. The command was given to Justinian; and a desperate battle was fought between the Greeks and Persians in the neighbourhood of Melitene, a town in north part of Cappadocia, in which Khoiásin was completely defeated. He died in the spring of the following year, A.D. 579, after a reign of 48 years, and was succeeded by his son Hormidas IV.
brought only to the amount of 33,000 roubles. The value of the rouble is 10½d.
The merchants of Kiechta and Maimaitchkin live on a very friendly footing, and frequently meet in social parties, but only during the day; for no sooner has the tattoo beaten in Kiechta, and the fire-ball ascended from the residence of the empress, than the gates of the towns are shut, and all communication between them is interrupted.

(Pallas, Travels in Siberia; Klaproth, Mémoires recc. de l'Asie; Cooke, Pedestrian Journey, &c; Erman, Annalen der Erdbücher und Staatsbände; Official Statements.)

KIDDERMINSTER, a corporate town and parliamentary borough, in the hundred of Halfshire and county of Worcestershire; 7½ miles on the Stony Road, 12½ miles north of the river Severn; 124 miles north-west by north from London. According to Nash (Hist. of Worcestershire) the name of this place was anteiently written Chiderminster, a term which has reference to the church on the brow of a hill and the water running beneath. At the time of the Conquest it was the king's property, and it remained with the crown until the reign of Henry II., who gave the manor to Manser, his favourite. At a subsequent period it became the property of Waller, the poet, by whom it was sold in 1643-4 in order to pay his fine to parliament on account of what was called Waller's plot. Kidderminster returned members to parliament as early as the 28 Edward I., but owing to disuse the privilege was afterwards lost. The Reform Act of 1832 restored them, and the town has since filled an important career both as a parliamentary borough, and now returns one member. The earliest charter of incorporation is that of 12 Charles I., but as it conferred upon the corporate body no power to acquire landed property, or to sell the rent of the estates, which was limited to two, they obtained from the crown in 1829 a new charter, which is now the governing charter, and bears date 7th August, 6 Geo. IV. The council consists of a mayor, six aldermen, and eighteen councillors.

KOHORO, a mountain in the province of Akita, with an estimated height of 3,413 feet. It is situated near the old road from Sendai to Hachino-ji, and is noted for its agreeable scenery. It contains several large lakes and a number of hot springs. The mountain is surrounded by a forest of pines, and is said to be the scene of many battles between the Japanese and Chinese.

KOLYANDER, or Kolyander, a town in the province of St. Petersburg, in Russia, and is noted for its fine scenery and summer residence. It contains several large parks and gardens, and is noted for its fine architecture and beautiful gardens. It is a favorite resort for the Russian nobility and wealthy citizens.

KÖNIGSBERG, an important town in Prussia, on the river Pregel, and is noted for its fine scenery and summer residence. It contains several large parks and gardens, and is noted for its fine architecture and beautiful gardens. It is a favorite resort for the Russian nobility and wealthy citizens.

KOSZT, a town in the province of Hungary, on the river Tisza, and is noted for its fine scenery and summer residence. It contains several large parks and gardens, and is noted for its fine architecture and beautiful gardens. It is a favorite resort for the Russian nobility and wealthy citizens.

KOTIKOV, a town in the province of Siberia, on the river Yenisei, and is noted for its fine scenery and summer residence. It contains several large parks and gardens, and is noted for its fine architecture and beautiful gardens. It is a favorite resort for the Russian nobility and wealthy citizens.
against child-stealing, enacts that if any person shall maliciously, by force or fraud, lead, or take away, or decoy or entice away, or detain, a child under the age of ten years, with intent to deprive its parents, or any other person having the lawful care of such child, of the possession of it, or with intent to steal any article upon or about the person of such child, whomsoever such article may belong, or shall receive, and have in his possession, any such intent as aforesaid any such child, knowing that it has been by force or fraud led, taken, decoyed, enticed away, or detained, every such offender, and their counsellors, procurers, aiders, and abetters, shall be guilty of felony, and shall be liable to be transported for seven years, or to suffer transportation without hard labour, in the common gaol or house of correction, for any time not exceeding two years; and if a male, to be once, twice, or thrice publicly or privately whipped (if the court shall so think fit) in addition to such imprisonment.

The act does not extend to a person who shall have claimed to be the father of an illegitimate child, or to have any right to the possession of such a child, on account of his getting possession of such child, or taking it out of the possession of the child’s mother or other person who has the lawful charge of it.

KIDNEYS are two glands lying in the lumbar region, on each side of the spinal column. They are composed of numerous delicate tubular ramifications, on whose walls there is a fine network of capillary arteries and veins, and which are all collected into one mass of a firm fleshy consistence, enclosed in a fibrous capsule.

The ureter, through which the urine is secreted by the kidney, the bladder, divides its extremity into a wide pouch, the pelvis of the kidney, which is divided into several portions called calyces. Into each calyx a nipple-like process, or papilla, projects, at whose extremity there are several minute orifices, each opening into a very fine canal, which, as it is continued into the substance of the kidney, ramifies and becomes tortuous. On all these canals, or tubuli uniseriati, minute blood-vessels ramify, and secrete the urine, which is conveyed from the tubuli into the calyces, and from thence through the pelvis and the ureter into the bladder.

The papillae, and the conical bodies called pyramids, of which they are the extremities, being chiefly composed of the excretory canals, are nearly white, and of a firm dense structure; but as the tubuli ramify, their branches separate in a somewhat radiating manner, and the blood-vessels filling the intermediate spaces between them give to all the exterior part of the kidneys a deep red colour, and a softer and more fleshy consistence. Hence the kidney is generally described as divided into cortical, or vascular, and a medullary or tubular portion.

The general structure of the kidney may be best shown by making a section from its convex border into the pelvis. The kidney itself, which part then presents several whorls of conical bodies, the pyramids, whose rounded apices, the papillae, project into corresponding tubular calyces, and whose bases are surrounded by the vascular cortical substance. In the latter no distinct arrangement of vessels can be seen, but there are scattered irregularly through it minute granular bodies called the acini, or corpuscles of Malpighi, which are composed of delicate tortuous arteries.

In the early embryo of mammalia each papilla, with the tubules opening on it and its blood-vessels, forms a separate body; but during growth the several renal cells are united into one mass, their original separation being however indicated by the more or less deeply lobulated form of the organ in various animals, and occasionally in man.

KIDNEYS, DISEASES OF. The principal disease to which the kidneys are liable is that which gives rise to the formation of calculi. [CALCULUS, Renal.] Sometimes they are composed of the pelvis of the kidney, where, by continued depositions, it may increase till it completely fills the pelvis and calyces; but more frequently it passes through the ureters into the bladder, producing in its passage violent spasmodic pain in the loins, sickness and nausea, and other symptoms. This affection is the most common cause of inflammation of the kidneys (nephritis), from which abscess and other morbid alterations may result. Chronic inflammation seems to be the most frequent cause of a peculiar alteration in the structure of the kidneys particularly described by Dr. Bright ("Medical Reports", 1818), in which the chief characters are, the interstitial deposition of a pale yellowish and firm substance, and a gradual or tuberculated form of the surface of the kidney, with great decrease of its vascularity. This condition is very common in hard drinkers; it usually produces dropy and is indicated by a dull heavy pain in the loin, a blotched expression of the countenance, a hard pulse, and the secretion of so large a quantity of albumen with the urine that it coagulates on being heated, or on the addition of a little bichloride of mercury.

Suppression of urine may be the ultimate result of disease of the kidneys. It is, on the contrary, an imperious symptom, and it may occur as an idiopathic disease. It is a condition of great danger, for it delirium and a comatose sleepy state very often supervene on it, and soon terminate fatally. Long and deep repeated attacks of retention of urine from obstruction produce dilatation of the ureters, and sometimes acquire an enormous size. There may result from the same cause a gradual absorption of the substance of the kidney, till in an advanced stage there is found nothing but a thin containing urine in a spongy cavity, or in a number of separate pouches. The kidneys are also subject, in common with other organs, to the deposition of various morbid substances, as cancer, fungus, bacte- ridos, melanos, tubercles, &c. But the diagnosis of all these circumstances is, that the disease must be looked on as one which, whether in the principal indications of each being the same, viz., a dull heavy pain in the loins, dropy, and sometimes hematuria.

KIEL, the capital of the duchy of Holstein, is situated in the north-eastern part of the country, and on a bay of the Baltic, called the Kielerford, which forms an excellent harbour, and admits even large ships of war to anchor near the town: 54° 10' N. lat., 10° 8' E. long. It is surrounded by walls, which are five gates wide, and entirely built, with straight walls and streets. The university of Kiel was founded in 1665, by Christian Albert, duke of Holstein. Though the university has a library of 7,000 volumes, a revenue of 20,000 dollars, 19 regular and 200 assistant professors, and about the number of students small, which is probably equal to the circumstance that living is very dear. The number has however increased of late years. The published annual accounts state that in 1816 there were 107 students, and in 1825 about 150, in 1832 about 211, and in 1835 about 245, which is probably near the present amount. The inhabitants, amounting in 1837 to 11,791, including those of a village of Brunswick, have some manufactures of hats, tobacco, sugar, &c. and some business is also done in brewing, and in the trade corn, rice, and other grain (which are celebrated) is considerable, and has much increased since the completion of the Holstein or Kiel railway, which joins the Baltic and the German Ocean. [Hans.]

Kien, a town in the district of Baveno, on the Lake of Maggiore, the place of a fair on the days after twelfth-day, which is attended not only by the farmers and the merchants, but by the nobility and gentry of Sleswick and Holstein. Near Kien there is an ancient castle delightfully situated, but inhabited. It is now fitting up for the residence of the prince of Holstein- Glücksburg, who has married the Princess Wilhelmina, daughter of the king of Denmark, on her divorce from her first husband, Prince Frederik of Denmark. There is a small congregation of Christians in the town of Kien. There is also a fine water, and a good deal of bathing, and steam-boats ply regularly between Kiel and Copenhagen.

KIEON, son of the emperor Yung Te-Hing, grandson of Kang He, succeeded his father on the throne of China in 1723, being then twenty-five years of age. The principal events of his long reign are: 1. The war which he carried on, from 1735 to 1755, against the Olos or Olen, the Kashgara, and other Tartar nations of central Asia; he also made a war on the Tartar chief, who was subdued by the arms of Kang He in 1696, had again revolted. Kien Loong defeated them, and again established the Chinese supremacy over the Tartary, north-west of China, as far as Kashgar. In consequence of these events he issued an edict, in the year of his accession, commanding all the Tartars to meet at Pekin, in April, 1760, on the return of the victorious army. 2. In 1770 the Turguts, a Mongolian tribe, allied with the Russian government, having removed from the banks of the Volga, after crossing the steppes of
Rain seldom falls in summer. Locusts are common, and the migratory locust often does great injury.

Agriculture is the chief employment of the inhabitants.

The fruitful soil produces all kinds of corn, pulse, hemp, flax, and tobacco. The crops are of a prodigious magnitude.

Several ears on one stem; the grain is large, round, and of excellent quality. The gardens produce all kinds of vegetables, and likewise melons, water-melons, and various kinds of fruit. Fruit of all kinds prospers, except the vine.

Petroleum is also very abundant; but it does not much fruit, but are content with their wild wood-berries.

Kiew has more and better timber than any other province of Little Russia. Next to agriculture the breeding of cattle is the occupation of the inhabitants. The oxen are large and of a good breed, generally of a dark color. Great numbers are fattened and sent to Austria, Germany, and the interior of Russia. The horses are small, but have many good qualities, and are very fit for light cavalry. Three sheep are kept, but do not number much. In the forests there are foxes, a few wolves, fewer bears, but many deer; there are hares, partridges, quails, and ortolans. In the Dnieper there are bears and otters, but they are rare, and in that and the other streams there are many kinds of river fish, though not sufficient for the consumption of the people. The only minerals made use of are clay, lime, chalk, stone for millstones, and bog-iron. The manufacturers are unimportant; they are confined to the towns, but the importation.
The isolation of the country from the commercial routes of Europe by the mountains being regular barriers, and also the self fond of learning, and a poet. [AMIOI, DE PERR.]

The Loong's embassy, containing the correspondence of the Inhabitants of the Loong, who are in China, is always very much with the government. The Loong's official residence is at Canton, and they have been there a few years; the Loong's business is not of much importance, but the Loong's character is very pleasing. The Loong's usual appearance is very erect; they have gardens, in which there are at least cherry and plum trees. The houses in the country are made of brushwood and branches of trees, covered with clay within and without, all whitewashed and thatched, and kept very clean, all the houses have gardens, and the gardens are very cheerful and pleasant. The Loong's are very fond of music, and always sing at work. The subjects of their songs are the country, lovers, and agriculture.

In general the Little Russian sings, plays, and dances whenever he can; his dances are full of voluptuous attitudes. He is addicted to drinking, though not so much so as other Russians, and has better but very intoxicating beverages. Industry is not one of his virtues, and he only works as much as is necessary for his subsistence and the gratification of his most urgent wants. In the town of Kiew there are many Great Russians and Germans; the Poles are the chief landholders and nobles, and possess the finest land and the best villages. They are very industrious; they have all the public houses, inns, and shops, and are likewise the butchers, cattle dealers, &c. Most of the inhabitants of the Greek church, under the archbishop of Kiew and Galitz, whose see is the bishopric of the first class, are Poles.

Of the Poles, many are Roman Catholics, and some Calvinists; of the Germans, many are Lutherans. The Jews have their synagogues and rabbis. The nobility are numerous, but few families are very wealthy. In the province of Kiew the land belongs to either Jews or to the government, who have altogether left the possession of all trades in the towns; the peasants are almost all serfs.

KIEW, the capital of the above government, situated in 50° 27' N. lat. and 30° 24' 45' E. long., is built on a hill on the right bank of the Dnieper, which has of late years so much decreased both in width and depth, that the trading navies can no longer travel up the river. The town consists of three parts, each at some distance from the others, viz.: 1. The old fortress, containing the cathedral and the townhall.

2. Old Kiew, or Sophienstadt, containing the fine cathedral of St. Sophia, and the residence of the archbishop. 3. Podol, containing most of the private houses, containing 120,308 persons, and the townhall. A fourth quarter was built under Catherine II., and called Vladimirstadt; but even in 1821 it was scarcely inhabited, and later writers do not mention it. Besides its cathedral, 20 churches, 9 convents, and a Greek

2 E 9
eclesiastical academy. Kiew has a university, founded in 1834, called St. Vladimir's university, which has obtained the library and collections of the Volynian Lyceum at Kiew, and contains the Greek eclesiastical academy in Russia, which was founded in 1568 and confirmed in 1737: it has 10 professors and above 1000 students. The troubles which agitated the provinces which now compose the district of Kiew had caused the lyceum of Kiew, Smolensk, and Volynia, to be transferred to the city of Tcherkassy, and afterwards the emperor resolved to re-organize that institution by placing it on a broader and more solid basis, chiefly with respect to the education of the youth of the government of Kiew. The lyceum of Kiew has consequently been transformed into a university, to which the name of St. Vladimir's University was given. (Ukases of 8th November and 25th December, 1833.) It is endowed with all the revenues of the lyceum of Kzemi, and all the libraries of the city and the province of Kiew. The library of Kiew is the largest of all the libraries in Russia, and all the collections belonging to that institution. In 1836 there were 88 professors and masters, and 203 students. The observatory is well furnished with instruments, and the library consists of about 46,000 volumes. There are considerable manufacturers of earthenware, many tanneries, and a very celebrated fair, attended by 30,000 Turks, Armenians, Germans, Swiss, English, &c. The population is about 40,000. KILDA, ST., the most northern of the Hebrides, is situated, by some, on the eastern, and by others on the western, coast of the Hebrides. The island itself is a low, level plain, and a part of it is in a state of cultivation. The highest point is a promontory, whose most elevated point, called Conachan, rises 1389 feet above the sea-level. Dr. MacCulloch estimates the greatest width of the island at two miles, and its length at three miles; but according to other authorities its length does not exceed three miles. The most elevated point over the higher points, the whole of the surface is covered with a thick turf of the freshest verdure, and highly susceptible of cultivation, were it not for the westerly winds which limit the agriculture to the south-east declivity, where there is most shelter, and where the village is situated. The tract adjoining the village is held conjointly by the inhabitants, whose respective ridges being interchanged every three years. The rest of the island is in pasture, allotted to the south-easterly winds, the average height estimated at 2000. Although the people dress in the English or Lowland style, and no trace of either kilt or tartan is to be seen, the English language is altogether unknown, and Gaelic is the only one understood. The chief part of their food consists of the flesh and eggs of the sea-birds, among which the gannet, puffin, and fulmar are most in request; and the supply furnished by these birds is so abundant that little or no attention is given to fishing, although the inlets are full of cod and herring. The down of the fulmar is also much valued; and in 1815 the rent of the island, which averages 400. per annum, was paid wholly in the feathers of that bird. There are three principal springs, the largest of which, Tober-nam-buay, produces a spring of fresh water, which is very much frequented by the population, the largest part of which is scattered about twenty families, and consists of 110 individuals. (See MacCulloch's 'Highlands,' from which this notice is chiefly drawn.) KILDARE, an inland county of the province of Leinster, in Ireland; bounded on the north by the county of Meath, on the east by the counties of Dublin and Wicklow, on the south by the county of Carlow, and on the west by the Queen's and King's counties. According to the map published by the Society for the Diffusion of Useful Knowledge, it is situated between 52° 59' and 53° 25' N. lat., and between 6° 27' and 7° 10' W. long. Its greatest length from north to south is 32 Irish miles, and its greatest breadth from east to west is 21 Irish or 263 statute miles. According to the above map, it has an area of 381,818 statute acres, or 397 statute square miles. The area is elsewhere estimated at 392,435 statute acres, of which 325,988 are cultivated ground, and 66,447 are overgrown pastures of the bog and mountain. The population in 1831 was 106,424. The surface is more flat than that of any other county of Ireland. The only considerable elevations are the hills of Rathmore, which form the western extremity of the range of the Dublin mountains, and the hills of Kildare, which occupy part of the southern margin of the Bog of Allen in the central northern division of the county. This group consists of the Red-hill, Dunmurry-hill, Grange-hill, and the Hill of Allen, which last is detached from the others, and terminates the range on the north-east. It is a conical hill nearly insulated by tracts of bog, and rises about 300 feet above the level of the surrounding country, which is here about 260 feet above the level of the sea. The valley is surrounded by a group of hills, which form a belt to the activities of the Wicklow mountains on the south-east, and divides the middle and southern parts of Kildare into two districts, of which the one slopes gradually towards the river Liffey on the north, and the other towards the river Barrow on the west. North from the Dummurry range the upland district spreads east and west, forming the southern boundary of the basin of the river Boyne on the west, and the western and northern boundary of the valley of the Liffey on the east. The valley of the Liffey is composed of 50,000 statute acres by a portion of the vast tract of peat bog called the Bog of Allen. This part of the county is traversed by the Grand and Royal canals in nearly parallel lines from east to west. The district which slopes towards the Barrow, comprising the western part of the county from the Bog of Allen to the county of Carlow, is divided into three open vales, by ranges of undulating ground extending in parallel directions from the central table-land towards the south-west. In each of these is very gradual, the channel of the Barrow being not more than 100 feet below the general level of the upland district. The most northerly of these vales, included between the summit level of the Bog of Allen and the western boundary of the county of Carlow, and south-west, is drained by the Feagile and Little Barrow or Rathangan rivers, which, uniting at the lower extremity of the valley, join the Barrow where that river, changing its course from an eastern to a southern direction, to unite with the Barrow in the extreme west of the valley. The valley is generally encumbered with bog; the southern side is open and arable. About midway between the source of the Little Barrow and its junction with the Great Barrow is a branch of the Grand Canal, diverging from the main trunk at the head of the valley, is carried in a direction parallel to the tributary river to join the Barrow Navigation at Athy. The length of this line from Lowtown on the Barrow to the stork of which the navigation is situated near the junction of the lesser and greater Barrows, also possesses great advantages as a station for carrying on traffic. The Barrow is here crossed by the above canal, which from Monasterovan to Athy is carried along the western bank of the river. From the level at Monasterovan another branch canal is carried westward to the towns of Portarlington and Montymellick, in the Queen's County, a distance of 114 miles. The country about Monasterovan is frequented by milk and cattle, and is the haunt of moors and puffins. The village of Moore Abbey, an ancient seat of the Loftus family, and latterly the residence of the Marquis of Drogheda, is situated on the east bank. The present mansion, which is surrounded by a well timbered tract of country, occupies the site of the old baronial residence of the Loftus family, which was visited by St. Cuthbert in 1195. The modern mansion, of the 18th century, and re-edited by O'Dempsey and O'Connor in the twelfth century. Ten miles south from Monasterovan on both banks of the Barrow is Athy, at the junction of the Barrow Navigation with the above-mentioned branch of the Grand Canal. Athy was formerly a place of importance, being a frontier town of the English Pale. It had greatly declined prior to the opening of these lines of navigation, but is now the chief point of traffic between Dublin and Carlow. The market constituency, extending from Athy to north-easterly direction to Old Kilcullen, includes an open tract of country about eight miles square, watered by the river Finnyer. The lower part of this district is chiefly occupied by bogs. The town of Kildare, at present a small place, is situated on the elevated tract at the upper end of the vale. It is a town of great antiquity, and still possesses numerous remains of former importance, including the ruins of a cathedral, castle, and several religious houses, with several ancient and preestablished churches. The surrounding country is open, and generally under tillage, with the exception of the Curragh of Kildare, a common containing upwards of 3000 Irish acres, which extends six statute miles along the coast of the table-land between the towns of Kildare and Rathmore. The west and north parts of the Curragh are throughout close and elastic, and the surface smooth and undulating. Old Kilcullen is situated on a hill a mile and a half from the eastern extremity of the Curragh. It was formerly a walled town, and is said to have had seven gates.
Killeen, about two miles to the north, led to its decay; it is now an insignificant place. Southward and eastward from the range of hills extending from Killeen to Athy lies a fertile tract watered by the rivers Greece and Leir, which fall into the Barrow at the southern extremity of the county. The uplands through the above valleys are highly cultivated, and to a great extent in demesne lands. On this river, near its source, is the neat and prosperous village of Ballytole, the principal inhabitants of which are Quakers. Further south are the villages of Timolin and Moone, the latter on the Greece, near Belan, a seat of the earl of Althorpe. Belan House, at the time of its erection in the beginning of the eighteenth century, was considered the most splendid modern mansion in Ireland. It is however a poor imitation of the picture near Kildare in the south; and the other, 26 miles in length, is not traversed by the Blackwood Reservoir on the north. A sub- stance of 20 feet in the substance of the bog has been caused in some places by the opening of these extensive drains, and great tracts have been made available for purposes of turfery which were before inaccessible. Large quantities of peat are now cut all along the line, for sale in Dublin. The futs of the turf-cutters are excavated from the banks of the morass and covered with soils, and are the only habitations through successive tracts of several miles. The decayed village of Prosperous is situated near the eastern extremity of this dreary tract. An attempt was made to establish the cotton manufacture here in the latter end of the last century; but the expense has not been returned even on buildings; but the enterprise entirely failed.

Livestock. The north-western part of the county, extending from the Bog of Allen to the Boyne, is open and chiefly in pasture. The towns here are Carbery and Johnston's Bridge. The great southern and western mail-coach roads pass through Kildare: the former by Naas, where it divides, one branch going by Killeen Bridge to Carlow, and another by Newbridge to Maynooth; and the latter by the Heath boundary through Kildare to Athlone. The remains of the county is well provided with roads made and kept in repair by grand jury presentations. The climate, from the quantity of boggy surface exposed, is more moist than that of the neighbouring counties on the north and south. In the central district the air is pure and keen; and milder and more salubrious in the valleys of the Liffey and Greece.

GEOLOGY.—The clay-slate, which flakes the granite axis of the Dublin and Wicklow mountains, occupies about one-fourth part of the surface of Kildare. It extends from the extremity of the Rathcoole group in the county of Dublin across the valley of the Liffey, whence it runs in a south-east direction to the Barrow, forming a range of mountains which occupies the entire valley of the Greece, with the exception of its lower extremity, where the verge of the limestone plain is interposed between it and the line of the Barrow. The granite tract of Carlow extends into this district, and is to be seen eastward, where the clay-slate passes into mica-slate along the eastern portion of their line of junction. The remainder of the county is occupied with the floetz limestone of the great central plain, broken only by the group of Dunmurry and the Hill of Allen. The Hill of Allen is composed of a mass of granular compact greenstone and greenstone porphyry protruded through the floetz limestone. Large crystals of hornblende and felspar occur throughout the greenstone. Dunmurry Hill, Dummer Hill, Dunmurry Manor, and Trench Hill consist of alternating beds of fine-grained grauwacke, grauwacke slate, and clay-slate, with a general dip of 60° towards the south-east, but in some places vertical. A small patch of red sandstone conglomerate occurs on the northern declivity of Red Hill. These strata, which have been quarried for millstones, range east and west, and dip 17° north. Between Dunmurry Hill and Grange Hill, which consists of trap, the floetz limestone is interposed, and again between the Hill of Allen and the Barrow the trap. The extreme of the Hill of Allen is a slight eminence called the Leap of Allen, composed of red sandstone conglomerate, which is quarried for millstones. Indications of copper have been observed on Dunmurry Hill, but the ore has never been produced. The clay-slate is generally carried within this county.

SOIL AND AGRICULTURE.—The soil is generally a rich loam,
resting on limestone or clay-slate. Calcareous gravel, which is formed over the greater part of the county, was pro-
fusely used as a manure during the last century; but from its subsequent effects on the soil it has been generally dis-
continued. The opening of the Grand and Royal canals has given facilities for obtaining manure of the best de-
scription from Dublin, by means of which the lands of the central and western districts are now in much better heart than they were at the beginning of the present century.
The chief tract of pasture-land in this county is the Cur-
ragh, which is used as a sheep-walk. There are rich fattening
lands in the baronies of Carbery, Clare, and North and South Salt, which occupy the north-western and north-
western portion of the country. The system of agriculture has been introduced by the resident proprietors,
and is practised to some extent by the smaller farmers.
Oaten is also in general use both for draught and the plotting.
The character of the stock of these counties has been much bettered by the last
years by the introduction of the best English breeds of
sheep and black cattle. The late and present duke of Leinster have been mainly instrumental in promoting these
improvements. The grain raised in Kildare is generally of
prime quality; the quantity sold at the different market-
towns in the years 1833 and 1835 appears from the follow-
ing table—

<table>
<thead>
<tr>
<th>Wheat (barr..)</th>
<th>Oats (barr..)</th>
<th>Barley (barr..)</th>
<th>Beer (barr..)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1833</td>
<td>1833</td>
<td>1835</td>
<td>1833</td>
</tr>
<tr>
<td>Naas</td>
<td>941</td>
<td>760</td>
<td>12,955</td>
</tr>
<tr>
<td>Kilcock</td>
<td>60,000</td>
<td>60,000</td>
<td>12,909</td>
</tr>
<tr>
<td>Athy</td>
<td>9,460</td>
<td>9,450</td>
<td>11,504</td>
</tr>
<tr>
<td>Rathangan</td>
<td>15,300</td>
<td>14,450</td>
<td>7,122</td>
</tr>
<tr>
<td>Kildare</td>
<td>1,000</td>
<td>1,100</td>
<td>1,122</td>
</tr>
<tr>
<td>Robertstown</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

The woolen trade is extensively carried on.
The only other manufactures carried on within the
county are, a manufacture of cotton, on an extensive scale,
lately commenced at Inchyguire, near Ballyitore, and a
small manufacture of woollens still continued at Cen-
bridge.
The condition of the working-classes is somewhat better
than in most of the neighbouring counties. The average
rate of wages for agricultural labourers is 1½d. per day,
for about 110 working days in the year. The appearance of
the peasantry is generally decent: they use the English
language universally.

Kildare is divided into the baronies of
Carbery on the north-west; Ickesth and Oughterry on
the north, containing the town of Kilcock, population (in
1821) 1730; Salt North on the north-east, containing

| Dsc. | How ascocrained | House. | Families | Families chiefly employed in agriculture. | Families chiefly engaged in trade, manufacture, 
<table>
<thead>
<tr>
<th>trivial handicrafts.</th>
<th></th>
<th>Families not</th>
<th></th>
<th>included in</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1792</td>
<td>Estimated by Dr. Beaufort</td>
<td>11,205</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>1813</td>
<td>Under Act of 1812</td>
<td>14,564</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>1821</td>
<td>Under Act 55 Geo. III. c. 120</td>
<td>16,478</td>
<td>19,180</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>1831</td>
<td>Under Act 1 Will. IV. c. 19</td>
<td>17,155</td>
<td>18,711</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

Population Table.

| | | | | | |
| | | | | | |

History and Antiquities.—In the antient division of
Ireland the south-eastern portion of Kildare was included
in the territory of Hy-Mail, of which O'Toole was prince;
the south-western portion formed part of O'Connor's territo-
ry of Hy-Falige; the western division belonged to Hy-
Gealan, and a small portion of the north to the kingdom
of Meath; with the exception of which last part the whole
was formed into the principality of Leinster. Leinster com-
ing to Earl Strongbow by his marriage with Eve, the
daughter of Dermot MacMurrough, was inherited by Wil-
liam Marshal, earl Pembroke, who married Isabel, only
daughter and heir of Strongbow. He had issue five daugh-
ters, among whom the prinicipality of Leinster was divided,
a.d. 1247. In this partition the county of Kildare was al-
lotted to Sibilla, the fourth daughter, who married earl
Ferrers and Darby. Agnes, the eldest daughter of this
marriage, was wife of William de Vesey, lord of Kil-
dare and Rathangan, Jurat Hertfor, and lord justice of
Ireland. A dispute having arisen between him and Henry
FitzThomas FitzGerald, lord of Offaly, in a.d. 1253, it
was awarded to be settled by single combat; but Vesey, having fled into France to avoid the duel, was attainted of treason, and his estates bestowed on his antagonist. In 1296 Kildare, which up to this time had been under the jurisdiction of the sheriff of Dublin, was erected into a separate county of himself, and subsequently adopted the peculiar system of Irish government. The castle of Kildare was commonly used by the earls of Kildare, and it is observed here on his capacity of lord justice, left his son Lord Thomas Fitzgerald, a rash youth of twenty, his deputy. A report shortly after reached Ireland that the very same year, the Archbishop of Canterbury, an official who has upon various charges of this nature to which he had exposed himself, was under a sentence of death. He threw up his office of deputy, A.D. 1534, and entered into open rebellion, in which he was joined by the five brothers of the earl. Fitzgerald had at this time in his possession the six principal castles of Maynooth, Rathangan, Portadown, Athy, Leix in the present Queen's County, and Carlow. Maynooth and Rathangan being taken in 1534, he and his uncle submitted in the ensuing year. They were sent to England, and executed at Tyburn, Feb. 3, 1535. The castle of Kildare, fought 16th April, 1642, between the royalists under the earl of Ormonde, and the Catholic army under Lord Mountgargret, which latter party suffered a signal defeat. The number engaged on both sides amounted to about 14,000. The castle is an ancient fortress, containing the ruins of a cathedral, which was the scene of the Restoration, and espoused the Protestant cause in the subsequent wars of the Revolution of 1688. The fortifications within this county attending on the latter event comprised 44,281 acres, valued at that time at £95,175. 6s. 6d. The principal persons attainted were of the families of Eustace, Tyrrell, Lawless, and Trant. Several sanguinary engagements took place between the king's troops and the insurgents in this county in 1798. At Old Kilfenellan the rebels had a temporary advantage, but were finally defeated here, as in various other parts of the county. Numerous earthen works, partly military and partly sepulchral, remain in this county. Of the first class, the most remarkable are the rath of Knockawley, the ancient palace of the kings of Meath; the ruin of Mullamast, the ancient Carrown, near Ballytore, and Rath-Adriscull near Athy. There are numerous sepulchral mounds on the Carragh; and here in the time of Giraludus Cenamensis was a stone monument similar to Stonehenge. Pillar-stones of large dimensions are still standing at Mullamast, Kilgogogan, Forenaghts, Pount's Town and Harristown. There are round towers at Kildare, Taghadoe, Kilcullen, Castledermot, and Oughterard. Among the ruins of the numerous religious houses of this county, the most remarkable are those of the cathedral church at Kildare, the French abbey at Castledermot and Clare, Great Connell Abbey on the bank of the Liffey near Newbridge, and the remains of several religious establishments in Naas. At Kildare the Fitzwilliam suite, containing several buildings in Irish domestic architecture, ornamented with sculptured figures. The castles of Athy, Maynooth, Kilkea, Rheban, Castledermot, Kilberry, Woodpark, Castle Carbery, Ballytagee, Clare, Lackagh, Dotheda, Kildare, Leixlip, Timolin, Corbog and Morrisstown are still inhabited. But the bishopric of such a house as the home education for the Irish priesthood of the Roman Catholic Church, who were formerly obliged to resort to the Continental colleges. It was first opened for the reception of fifty students, in October, 1795. A lay-college was shortly after attached; but this was discontinued in 1817. The buildings now accommodate 450 students. Of this number 280 are free students, who are selected by the bishops to form the several diocesan college, and pay eight guineas at entrance, which is their only expense. The remainder are either pensioners who pay twenty-one guineas per annum and four guineas entrance, or half the amount. The establishment is supported by these payments, by private bequests, and by a parliamentary grant of £8,929l. per annum. The college is governed by a president, vice-president, dean, and procurator, or bursar: there are professors of the sacred doctrine, of natural philosophy, of logic, of belles lettres, Hebrew, Greek, and Latin, English eloquence, and of the Irish and French languages. The students rise at half-past five o'clock, and retire to rest at half-past nine in the evening. The period of study is usually five years, of which two are devoted to humanity, logic, and mathematics, and three to divinity, but the course is sometimes shortened by the omission of mathematics. The building consists of a quadrangle, a library, and several halls. The sale of its erection, before some late additions had been commenced, was about 32,000l. There are thirty-four acres of land attached, which are laid out as a park for the recreation of the students. The lay-school of Tuscany, Clongowes, near Clane, was opened as a seminary for the sons of the Roman Catholic nobility and gentry in 1814. It is conducted by Jesuits, of whom there are forty-five resident in the institution. The building is a spacious quadrangle flanked by round towers, and has an imposing appearance. There is a museum, library, and theatre for lectures in natural and experimental philosophy. The institution is governed by a president, dean, and procurator, or bursar. There are six professors of various subjects, and a professor of experimental philosophy, and a professor of natural philosophy. The course of education is more extended in classics than in the sciences. The county expenses are defrayed by grand jury presentment. The amount levied in the year 1835 was 19,554l. 18s. 9d., of which 1221l. 7s. 10d., for public roads, was charged to the county at large; 605l. 12s. 5d., for public roads, was charged to the several baronies; 5506l. 7s. 6d., was for the public establishments of the county; 471l. 15s. 19d. for police, and 2304l. 14s. 11d. in repayment of loans advanced by government. (Statistical Survey of Kildare; Transactions of the Geological Society, vol. iv.; Cox's History of Ireland; Brewer's Beauties of Ireland; Parliamentary Reports, Papers, &c.) KILDARE, a county of Ireland in the province of Leinster, on the north side of Dublin, in Ireland. It comprises parts of the three counties of Kildare, King's County, and Queen's County, extending from east to west 46 statute miles, and from north to south 29 statute miles. The chapter consists of a dean, precentor, chancellor, treasurer, archdeacon, 4 prebendaries, and 4 minor canons. In 1792 there were in this diocese 81 parishes, constituting 31 benefices, having 28 churches of the establishment. In 1834 the numbers were, parishes 50, benefices 41, churches of the establishment 35, other places of Protestant worship 4, Roman Catholic places of worship 110. In the latter year the gross population of the diocese was 134,556, of whom there were 13,907 members of the Established Church, 9 Presbyterians, 8 other Protestants, 1,230 Catholics, 120,056 Roman Catholics, being in the proportion of 81 Roman Catholics to 1 Protestant nearly. In the same year there were in this diocese 215 daily schools, educating 12,553 young persons of both sexes, being in the proportion of 94 per cent. of the population receiving daily instruction, in which respect Kildare ranks eighth among the 32 dioceses of Ireland. Of the above schools 44 were, in 1834, in connection with the National Board of Education. The foundation of this diocese is attributed to St. Helen, a follower of St. Brigid, by whose assistance he is said to have founded the original cathedral in the beginning of the sixth century. Aodh Dubh, who died a.d. 638, is the next bishop whose name has been preserved. He had been king of Connacht, but retired from power, and embraced a monastic life, and became a successful monk, abbot, and bishop of Kildare. The see was
...for seven years vacant between the death of Simon of Kilken-...
Geology.—With the exception of the mountain groups of the south, the entire surface of Kilkenny is occupied by the flœet limestone of the central plain overlaid in the hilly districts north of Kilkenny city by the shale and sandstone formations of the Castlemacom district. The limestone formations are nearly co-extensive with the hilly districts; the limestone, where it forms the surface-rock, spreads into undulating plains sweeping round the hilly tracts, and sometimes occurs as a deposit, as in the coal districts; the hilly districts consist of alternations of shale with argillaceous ironstone, compact quartz sandstone, and sandstone slate. Each tract constitutes a separate basin, the strata in that of Castlemacom dipping from the edge towards the centre of the district, but from the other edges of the district, and the uppermost in the interior of the district. The coal raised from these beds is anthracite, or non-flaming coal, called also mineral charcoal, from its containing 94 to 96 per cent. of pure carbon. It is accompanied with culm, which is used extensively for burning lime; the coal itself is used for domestic purposes and melting. The Castlemacom district contains seven westable beds of different thickness, arranged one over the other. Of these the uppermost beds, being nearly free from sulphur, is the most valuable, and are now nearly exhausted. But the three lowest beds, containing an abundant supply, have never been worked except when they occur near the surface. The beds, in ascending order, consist of, 1st, a bed little more than one foot thick occurring at the beginning of the district; 2nd, above the limestone substratum; it has never been worked. Second bed, divided into two parts, each about one foot thick, by a layer of fine clay. The coal is somewhat slaty, partly fissile, and is generally separated from the overlying strata. The coal has occasionally worked near the surface, but never to any considerable extent. The third bed, which is rather thicker and more solid than the second, is worked only in a few places. Fourth bed, usually composed of four feet of solid coal, and two feet of sandstone; it occurs over a great extent of the interior of the district, and is at present worked in several places. Fifth bed, one foot in thickness; not much worked. Sixth bed, the three-foot coal, which has supplied the principal demand for upwards of a century, now nearly exhausted. The principal works are at Borrisoole, Currow, and Dromahady, in which in 1836 the produce was 42,554 tons of coal, at from 15s. to 20s. per ton, and 53,364 tons of culm at 4s. to 5s. per ton. Workings are also carried on at Feroda and other places in the district for culm and coal, the produce of which, in 1836, was 18,900 tons of culm, at from 4s. to 6s. 6d. per ton. The stratum on which the three-foot bed rests has been found to answer remarkably well for firebricks and other articles which are exposed to a great degree of heat. The flœet limestone is also used for roofing purposes. The Arda district, which extends out of Tipperary into this county, is not at present worked. The isolated tract north of Freshford produces nothing but culm. The limestone border generally produces the foot of the hill, while beyond it the limestone spreads half way up the scelliticy, and in one or two instances forms considerable hills on the exterior. A deposit of limestone-gravel, including boulders of large dimensions, generally occupies the exterior hollows of these hills, which towards the south and south-east slope gradually to the central plain. The general colour of the limestone is a bluish-grey; the best for burning is of a blackish colour, and is found near Kilkenny and Thomastown. Iron, manganese, and silice are generally diffused through the limestone rock towards the borders of the county, and prevent it from burning. Near Kilkenny it passes into a fine black marble, containing a great variety of impressions of madrepor and of bivalve and turbine shells. These beds are extensively quarried, and the blocks dressed on the spot by a saw-mill driven by the Nore. The marble, which is sometimes procured of a jet-black, is manufactured into chimney-pieces, tombstones, &c.; it bears a very high polish, and can be raised in large blocks. The hall at Aranmore is upheld by four large marble columns, each of which is each formed of a single block of marble from this quarry, ten feet six inches in height. Black primitive limestone also occurs at Ballyragget. The tract of limestone skirts the northern bank of the River Barrow, and along its northern boundary for a distance of several miles, into a friable marly rubble, which is extensively used for manure. The surface heaths and slacks under rain as if it had been subjected to the action of fire, which appearance is confirmed by the fact of detached portions of the heath and sand—

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stone having been found among the decomposed calcareous strata in a vitrified state. Marl is found in large deposits in various other parts of the county. The mountain tract of Kilkenny, with the exception of the best primitive group of Brandon, consists of a nucleus of clay-slate surrounded by sandstone. The latter rock extends over the greater part of that portion of the Slievenaman group included in Kilkenny, and constitutes the entire tract of the mountain. The soft clay-slate again extends beyond the valley of the Aruga, from which it extends eastward to the Ross river, and northward beyond the Nore, constituting the range of Coppinaght, and occupying the tract included between that range and the western declivities of the Slievenaman group. The same extends along the western foot of Coppinaght, so that the clay-slate is nowhere in contact with the field of limestone.

Minerals.—The chalybeate spa at Ballyseppin was much celebrated in the last century for its efficacy in the cure of cutaneous and scrofulous diseases. It is still visited by invalids, who derive considerable benefit from the waters; but its celebrity at present chiefly arises from the humorous verses of which Dean Swift makes Dr. Sheridan have made it the subject. The water contains fixed air, iron, and probably fossil alkali. Essays concerning its properties, and in commendation of the air of the neighbourhood, were published in 1724 and 1725. There are chalybeates at Kilkerne, Castlecomer, Cooleahin, and several other places in the county, but the waters have little efficacy.

Soil and Agriculture.—There is but a small portion of Kilkenny unfit for tillage. The hills of the nothern district are partly wooded and inaccessible; and the Walsh mountains are for the most part fit for pasture only. The tract of Brandon is the only considerable extent of rough land in this county. In the northern part of the Castlecomer coal-tract the soil is a moosy turf lying over a stiff whiff clay, which is the poorest district out of the mountain region. From Castlegate southward the soil is light and friable as far as Kilkenny, and becomes deep, rich, and capable of any tillage towards Gowran and thence to Thomastown. The neighbourhoods of Durrow and Johnstown are good tillage lands, and the valley of Freshford has some of the best tillage land in the county. The soil of the hilly tract south of Freshford is fitter for pasture, and this is also the character of the right bank of the Nore from Kilkenny to Bennet's Bridge. The district watered by the Owenees has an excellent soil, and yields great crops of wheat. The soil of the hilly country on the south is dry and kind, but it is badly enclosed and destitute of shelter. Some of the best wheat and meadow lands in the south of Ireland are situated in the level tracts along the Suir.

About one-third of the level districts is in tillage. In the poor soil of the Castlecomer tract the proportion of tillage land is about five acres in the hundred, and in the Walsh Mountain district about nine. The total productive tillage of the county was estimated in 1829 to be 150,661 acres, producing 156,000 barrels of wheat, 80,000 barrels of barley, and 19,500 barrels of berc, 100,000 barrels of oats, and 1,030,000 barrels of potatoes. The sales of grain in the several market-towns in 1826 and 1836 appear from the following table:

<table>
<thead>
<tr>
<th>Barrels of Wheat</th>
<th>Barrels of Barley</th>
<th>Barrels of Oats</th>
</tr>
</thead>
<tbody>
<tr>
<td>1826</td>
<td>1826</td>
<td>1836</td>
</tr>
<tr>
<td>Kilkenny</td>
<td>18,000</td>
<td>1,100</td>
</tr>
<tr>
<td>Gowran</td>
<td>66,361</td>
<td>6,400</td>
</tr>
<tr>
<td>Johnstown</td>
<td>21,360</td>
<td>2,200</td>
</tr>
<tr>
<td>Freshford</td>
<td>24,000</td>
<td>2,500</td>
</tr>
<tr>
<td>Ballyspellin</td>
<td>24,000</td>
<td>2,500</td>
</tr>
<tr>
<td>Castlegate</td>
<td>24,000</td>
<td>2,500</td>
</tr>
<tr>
<td>Callan</td>
<td>24,000</td>
<td>2,500</td>
</tr>
</tbody>
</table>

There are two districts almost wholly occupied by dairy-farmers, the Walsh Mountains and the southern part of the Castlecomer tract. In the southern dairy district the sour milk is used for fattening pigs for the Waterford market; in the northern district the milk is sold, there being no case for the market for pork. There is a perpetual cleanliness by the dairy-farmers of the Walsh Mountains than by the others. Their strainers are usually of hemp, and sometimes of tin: among the northern dairies woolen strainers are generally in use. The wages of agricultural labourers are 12d. in winter, and, during the rest of the year, 10d. The average number of working days in the year is 145.

Manufactures.—The manufacture of carpets, diapers, and tapestry was introduced into the county by the Countess of Ormonde in 1539. James duke of Ormonde, about the middle of the seventeenth century, established and encouraged the manufacture of woollen goods in the county. There was considerable manufacture of blankets, which was carried on with great activity at Kilkenny from about 1745 to the beginning of the present century, has also declined. In 1822 there were, in the districts of Cork, Kilkenny, Monto, and Carrick-on-Suir, 2194 persons engaged in this manufacture, 9876 depending on them, 19,932 pieces annually manufactured, of the value of 199,150l., with capital invested in buildings and machinery to the amount of 116,700l. At present all these districts do not manufacture to the extent of 20,000l. In 1831 the number of weavers of every fabric in Kilkenny county was 502, and of wool-combers two. A coarse frieze for home consumption is made among the peasantry.

In 1792 there were in Kilkenny 37 mills employed in the manufacture of woollen goods. The number is at present about the same; but the establishments are greatly increased in size and grinding power. They are chiefly on the Nore, which, between Durrow and Innisgoggin, is navigable for 15 miles.

Civil Division.—Kilkenny is divided into the baronies of Fassailina, on the north-east, containing the towns of Castlecomer, population in 1831, 2436; Ballyragget, pop. 1839; Clough, pop. 582; Gal moy, on the north-west, containing the towns of Clonmel, population in 1831, 634; Limerford, pop. 1366; and Johnstown, pop. 875; Gowran, on the south-east containing the towns of Thomastown, pop. 2871; Graigues, pop. 2159; Gowran, pop. 1009; Innisgoggin, pop. 964; Bennet's Bridge, total pop. 426; and Gorebridge, pop. 394; Durrow, pop. 2682; Freshford, pop. 2175; Shilleologher, also on the west, containing the villages of Knocktopher, pop. 475, and Stoneyford, pop. 445: Ida, on the south-east, containing the village of Rosbercon, a suburb of New Ross, pop. 367; Clonmel, on the south, containing the town of Clonmel, pop. 654, and several villages. The county of the city of Kilkenny forms a separate division, containing 4 parishes, with a population of 23,741.

Of the above towns the following are corporate:—Cobble, and the towns of Ballyragget, Clough, Gal moy, Gowran, Thomastown, Durrow, Freshford, and Freshford, are boroughs, and have borough franchises. The representation is at present limited to two county members and one for the county of the city. In 1836 the county constituency was 1477. The assesses are held at Kilkenny, and the general quarter sessions are held at Castlecomer, and Thomastown. The county court-house and gaol are at Clonmel, and are held at both Kilkenny and Thomastown. The number of criminal offenders committed to the county gaol in 1836 was 480, of whom 409 were males and 71 females. Of these 173 males and 49 females could read and write, 64 males and 9 females could read only, and 169 males and 57 females could read not nor write. The police force in 1836 consisted of one resident magistrate, 10 chief constables, 51 constables, 341 sub-constables, and 22 horse of the constabulary; and 2 chief inspectors, 3 chief constables, 123 sub-constables, and 2 horse of the Peace Preservation police; the expense of maintaining whom during the year 1835 amounted to 21,167/. 11s. 6d., of which 11,284/. 18s. 3d. was payable to the county. The district Lunatic Asylum is at Castlereagh. The county infirmary and fever hospital are at Kilkenny, and there are also fever hospitals at Freshford, Kells, Kilmaganny, and Rosbercon, with dispensaries in all the towns and chief villages.
History and Antiquities.—On the partition of Leinster among the daughters of William earl of Pembroke, A.D. 1249, the eldest sister fell to the lot of Richard, the third daughter, who married Gilbert de Clare, earl of Gowerton and Hertford; by him she had issue, among other children, Eleanor, who married Hugh le Despenser the younger, whose grandson Thomas le Spencer sold his castle and manor of Kilconnell to James Butler, third earl of Ormonde, in 1391. The other great proprietors were the families of Grace and Walsh, who possessed the districts of Grace's Country (nearly co-extensive with the county of Kilkenny) and the Walsh Mountains respectively. The former family descend from Raymond le Gros, one of the most distinguished of the Anglo-Norman invaders, who obtained this district with his wife Basilia, sister of Sir Strongbow. The latter are descended from other companions of Strongbow called Walshes or Walshes (in Irish Brennagh), from their having originally come from Wales; they were seneschals of the palatinate of Leinster under the De Clareys. Both families lost their estates in the war of the Revolution of 1688. The early history of the castle is closely tied with the feudalism of the families of Grace and Walsh against the houses of Desmond or Kildare, which were the long-standing opponents of Grace's Country, and by which the castle was destroyed at the siege of Kilkenny. The bulk of the castle, however, was preserved, and became the property of the Grace family after the revolution of 1688. The castle was restored in 1692, and its ruins are still visible among the picturesque castles of the county.

In the 18th century, the castle was sold to the Earl of Ormonde, who undertook its restoration. The castle was later purchased by the Earl of Pembroke, who undertook another restoration in 1849. The castle is now owned by the National Trust and is open to the public. The castle contains a number of interesting features, including a great hall, a chapel, and a series of dungeons. The castle is a fine example of Irish castle architecture and is a popular tourist destination.

Kilkenny is situated in the dioceses of Ossory, Cashel, and Leighlin, under which titles it received its educational institutions. The county is notable for its rich archaeological heritage, including the remains of ancient castles, churches, and monasteries. The county is also known for its agricultural heritage, with a strong tradition of farming and rural life.

The county is bordered by the counties of Tipperary, Wexford, and Waterford. The county is divided into four electoral divisions: Kilkenny West, Kilkenny South, Kilkenny North, and Kilkenny East.

The town of Kilkenny is the largest city in the county, with a population of over 28,000. Other significant towns in the county include Thomastown, Callan, Kilkenny, and Castlecomer.

The county is known for its rich history and culture, with a number of important historical sites and landmarks.

The county is also known for its rich agricultural heritage, with a strong tradition of farming and rural life. The county is known for its production of dairy products, particularly cheese and butter, and is also known for its production of beef and lamb.

Kilkenny is served by a number of airports, including Kilkenny airport and Kilkenny town airport.

The county is also served by a number of rail and road links, including the M9 motorway, which runs from Dublin to Kilkenny.

The county is also known for its rich natural heritage, with a number of important natural sites and landmarks, including the Kilkenny Mountains and the Kilkenny Bogland.

The county is also known for its rich historical heritage, with a number of important historical sites and landmarks, including the ancient city of Kilkenny, the ancient monastery of Kilkenny, and the ancient castle of Kilkenny.

The county is also known for its rich cultural heritage, with a number of important cultural sites and landmarks, including the Kilkenny Arts Centre, the Kilkenny Opera House, and the Kilkenny Theatre.

The county is also known for its rich educational heritage, with a number of important educational institutions, including the University of Kilkenny and the Kilkenny College.

The county is also known for its rich sporting heritage, with a number of important sporting sites and landmarks, including the Kilkenny Racing Club and the Kilkenny Football Club.

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takes its name from the cathedral church of the diocese of Ossory, founded here about the end of the twelfth century. The site was selected by the early Anglo-Norman invaders for the site of a castle, which, when partly built, was destroyed by Donald O'Brien, king of Thomond, A.D. 1193. As part of the territory acquired by marriage with the daughter of Dermot MacMurrough, it devolved upon William Marshal, Earl Pembroke, who founded the present castle, A.D. 1195. The castle occupies a commanding site on the west bank of the Nore, which is here about 12 feet below the level of the town. The castle is seated on a gentle eminence on the same side of the river, at the opposite or northern extremity of the city. The small river Bregah running into the Nore about midway between these points divides the city of Kilkenny Proper from the city of Ossory. The corporation or St. Canice's, the former having originally been a dependency on the castle, the latter on the cathedral. A large suburb occupies the opposite side of the river, and is connected with Kilkenny Proper and Irishtown by two hand-bridges.

Besides the castle, William Marshal the elder founded the hospital and abbey of St. John, in John's Street, Kilkenny, A.D. 1211; and William Marshal the younger founded the Dominican or Black abbey in Irishtown, A.D. 1225. The Franciscan friary, the bank of the Nore was also formed by the same family, and completed in 1347. At this time Kilkenny was a place of great importance as a frontier town of the Pale and a place of assembly for councils of the north and south counties. At the parliament held here A.D. 1367, before Lionel, duke of Clarence, a celebrated statute of Kilkenny, by which the Breton law was legally abolished, although it continued practically in operation until the time of James I. In 1391 James Butler, archbishop of Ossory, and founded the castle a manor from Thomas Le Spenser, to whom the possessions of the family of Marshall had descended; and the title and estate still continue in the family of the purchaser. In 1524 the earl of Ormond received King Richard II. here, and engaged with him in a great treaty of fourteen points. In 1400 Robert Talbot, a nephew of the earl, walled in the town, and various grants for murage,avage, &c. were made to the citizens during the succeeding century. Parliament, and royal courts continued to be held in Kilkenny until the breaking out of the rebellion of 1641, when it became the head-quarters of the Roman Catholic party and the seat of the supreme council appointed to manage their affairs. The council was modelled on the plan of a parliament, consisting of two houses, one composed of temporal peers and prelates, the other of members delegated from counties and boroughs. Both sat in the same chamber, but the lords had a retiring-room for occasions of conciliation. The meeting was at the house of a Mr. Shanahan, in the Cowl-market, Kilkenny, 1802. On the 23rd March, 1650, the parliamentary army, commanded by Oliver Cromwell, appeared before the town, which was garrisoned for the Roman Catholic party by Colchester. An attempt was made next day to carry the place by assault, but it failed, and on the 25th a battery was opened on the castle. A breach being effected, the assault was made twice that evening, but without success, and the breach was quickly repaired. Cromwell was about to abandon the siege when the mayor and townsmen admitted his forces into Irishtown. Here the besiegers were again repulsed in endeavouring to make their way through the Franciscan abbey into Kilkenny Proper. On the 28th however, the garrison came up with 1500 men, on which the garrison surrendered on honourable terms, wounds him self complimenting them on their gallantry. In 1562 Cromwell's first high court of justice sat here, and occupied the same chamber which had been used by the supreme council.

The chief object of antiquity is the cathedral church of St. Canice. It is a cruciform building, surmounted by a low tower: it extends from east to west 226 feet, and from north to south 123 feet, dimensions greater than those of any other church in Ireland, except Trinity and Patrick's and the Church, Dublin. The chapel of St. Mary in the north transept serves as parish church. The oldest parts of the building appear to be of the architecture of the early part of the thirteenth century. The nave is divided from the side aisles by seven arches supported by seven columns, between which are numerous altar-monuments. The choir with the chancel is 77 feet in length. It is fitted up with varnished oak, and has a noble east window. The whole building had fallen greatly to decay in the beginning of the eighteenth century, but was repaired by Bishop Poock in 1756, and is now in good preservation. Of the original castle there remain three massive towers worked into land walls, additions, in the French taste of the seventeenth century, made by James, duke of Ormond, in 1682. The building occupies three sides of a quadrangle, having a garden and fountain in front and a lofty terrace towards the Nore. The principal apartment is the picture gallery of the bishop. In 1697 a tower was erected to the Nore pierced so close to one another that the intervals were nearly mullions, from which peculiarity it had the name of 'the lantern of Kilkenny.' Black Abbey has been partly restored, and converted into a church for Roman Catholics.

The architecture of the western part and of the south transept ranks among the best examples of the modified pointed style of the fourteenth century to be met with in Ireland. The body and tower of the Franciscan friary are still in existence, and the former has latterly been used as a tennis-court.

Kilkenny was first incorporated by William Marshal the elder, and Irishtown by King Edward IV. Their governing charters are of the 7th and 3rd James I., respectively. The latter charter was the incorporation of a mayor, aldermen, and 36 common-councilmen, by favour of whom the freemen are admitted, and latterly by birth, servitude, and marriage also. The recorder is elected by the body of the corporation, which is a civil jurisdiction unlimited in amount in causes arising within the precincts of the corporation. The annual revenue of the corporation arises from tithes producing 8971. 13s. 94d., lands producing 8904. 17s. 94d., and customs producing about 2007. per annum. The corporation is divided into a deanery, a civil jurisdiction, and a jurisdiction spiritual.

In 1689 the number of voters was 808. The right of voting is regulated by the corporation.

The city and county courts are held twice a year, and quarterly sessions in rotation with the towns of Castlecomer, Thomastown, and Urlingford. The county and city court-houses are built on the site of an ancient castle of the Graces. The city gates are small, old, and badly arranged; but for the services performed in the old town, it is spacious and well constructed.

The town is well built, and has a busy and cheerful appearance, particularly that portion of it constituting Kilkenny Proper. The building material is usually stone, whitened or washed with rough-cast. The duties of police are discharged by a Peace Preservation force of one chief constable, three constables, and seventeen sub-constables. Four justices of the peace are elected annually. Up to the year 1836 the provisions of the Lighting and Cleansing Act of 9 George IV., c. 82, had not been put in force in Kilkenny. The environs are of a very pleasing character, and the Mall, extending a mile along the back of the river, is an elegant walk.

The blanket manufacture, although much decayed, is still carried on to a considerable extent. There is a small manufacture of coarse woollen cloth and linens; but the chief manufactory is in flax, bleaching, cutting, mending, and distilling. Tanning and the provision trade are also carried on extensively, and there are great fairs twice a year for wool and black cattle. In 1689 the number of houses in Kilkenny city was 567; in Kilkenny city, including Irishtown, the number in 1818 was 2777. In Kilkenny city, in 1768 the number was 2689, and 2870 in 1802. The following table is for the county of the city —

K I L

K I L
The grammar-school or college of Kilkenny is an antiquity as old as the memory of Pierce Butler, earl of Ormonde and Osory, and his wife, the Lady Margaret Fitzgerald, in the sixteenth century; and further endowed by the duke of Ormond in 1672. By the charter granted on the latter occasion the children of the retainers of the duke of Ormonde may be educated for instruction in Latin, Greek, Hebrew, poetry, astrology, gratis, and the children of townsmen of Kilkenny at half-price; all others to be received according to rates of the chief schools of Dublin. On the attainder of fines, third duke of Ormond, the privilege of presentation lapsed to the provost and fellows of Trinity College, Dublin. At present the head-master receives an annuity of 20 per annum from the Ormonde family. The number of scholars is about 45. A poor-school for about 150 children of both sexes is supported in St. Mary's parish by bequest of 100£ per annum left by Mr. Evans, and by poor contributions amounting to about 60d. annually. In 1792 there was a poor-school, kept by nuns, for 400 orphans.

A Mechanics' Friend Society, established in 1833, has a library of 700 volumes and a public lecture-room. A subscription library, containing 4000 volumes, with a newspaper attached, has been open since 1811. The deposit in the National Bank, established in 1815, amounted in 1835 to 27,784£.

(Statistical Survey of Kilkenny; Ledwich's Essay on the agriculture of Kilkenny; Brewer's Beauties of Ireland; a commission to the Poor.)

KILLALLA, a bishop's see, or archdeaconry of Tuam, in the diocese of Tuam. It comprises a large part of the county of Mayo, and a portion of the county of Sligo, extending from east to west 57 statute miles, and from north to south 27 miles. It contains the lands of a dean, precentor, and archdeacon, and five prebendaries. In 1792 there were in the diocese 152 parishes, constituting 11 benefices, having 12 churches under daily instruction. In 1834 the numbers were—parishes 156, benefices 13, churches of the Establishment 13, other places of Protestant worship 2, Roman Catholic places of worship 30. In the latter year the gross population of the diocese was 144,258, of whom there were 7729 members of the Established Church, 38 Presbyterians, 139 other Protestant Dissenters, and 7729 Roman Catholics. In 1792 there were 812 habitations, comprising 42 benefices, having 35 churches of the Establishment. In 1834 the numbers were—parishes 108, benefices 60, churches of the Establishment 56, other places of Protestant worship 5, places of Roman Catholic worship 111. In the latter year the gross population of the diocese was 379,076, of whom there were 19,149 members of the Established Church, 16 Presbyterians, 326 other Protestant Dissenters, and 35,655 Roman Catholics, being in the proportion of 18 Roman Catholics to one Protestant nearly.

In the same year there were in this diocese 129 schools, educating 7413 young persons of both sexes, being in the proportion of 513 per cent. of the entire population under daily instruction, in which respect Kilkalla took the twenty-seventh among the 32 dioceses of Ireland. In the above schools, in 1834, there were four in connection with the National Board of Education.

St. Muredach, the son of Eochard, was consecrated first bishop of the see by St. Patrick, about A.D. 440. It has been held in commendam with that of Achonry since the division of Meyler Magrath to the bishopric, A.D. 1607. The last bishop of the united diocese was Doctor James Colclough, on whose death in 1789 these sees became again united, and the archbishopric of Tuam, according to the provisions of the 3 & 4 William IV. c. 37. The see lands, vested in the Ecclesiastical Commissioners, comprise 664 3/4 statute acres; the gross annual revenue, on an average of the years ending December, 1833, was 11£ 10s. 4d.

Kilalla is situated at the mouth of the river Moy, and has a population of 1125. It is a place of some trade in the export of grain and the manufacture of cannon, and is the vicinity to the more thriving town of Ballina. It has lately declined. The cathedral, which was repaired in 1817, is an old building, and is used also as the parish church.

The diocese of Achonry extends from north-east to south-west 35 statute miles, and is 27 statute miles broad. It comprises a large portion of the county of Sligo, and a part of the county of Mayo, and bounds the diocese of Killala on the south and east. The chapter consists of a dean, precentor, and archdeacon, with three prebendaries. In 1792 there were in the diocese 27 parishes, constituting nine benefices, having eight churches of the Establishment. In 1834 the numbers were—parishes 25, benefices 13, churches of the Establishment 11, Roman Catholic places of worship 35. In the latter year the gross population of the diocese was 114,422, of whom 5417 members of the Established Church, 143 Presbyterians, 27 other Protestant Dissenters, and 108,833 Roman Catholics, being in the proportion of 191 Roman Catholics to one Protestant nearly. In the same year there were in this diocese 107 daily schools, educating 8498 young persons of both sexes, being in the proportion of 7:34 per cent. of the entire population under daily instruction, in which respect Achonry ranks seventeenth among the 32 dioceses of Ireland. Of the above schools, in 1834, 14 were in connection with the National Board of Education.

Achonry is a mean hamlet, in the barony of Leney, in the county of Sligo. The cathedral is used as the parish church. The see lands comprise 11,784 acres, from which the annual average income is 148£ 6s. 9d.

(Ware's Bishops; Beaufort's Memoir of a Map of Ireland; Parliamentary Returns.)

KILLALOE, a bishop's see in the archiepiscopal province of Cashel, in Ireland. The diocese extends upwards of 70,000 or 100 statute miles, through the counties of Clare and Tipperary into the King's County; and includes also a small part of Queen's County, Galway, and Limerick. It varies in breadth from 7 to 25 miles Irish. The chapter consists of a dean, precentor, chancellor, treasurer, and archdeacon, and five prebendaries. In 1792 there were in the diocese 119 parishes, constituting 42 benefices, having 35 churches of the Establishment. In 1834 the numbers were—parishes 106, benefices 60, churches of the Establishment 56, other places of Protestant worship 5, places of Roman Catholic worship 111. In the latter year the gross population of the diocese was 379,076, of whom there were 19,149 members of the Established Church, 16 Presbyterians, 326 other Protestant Dissenters, and 35,655 Roman Catholics, being in the proportion of 18 Roman Catholics to one Protestant nearly. In the same year there were in this diocese 349 daily schools, educating 23,452 young persons of both sexes, being in the proportion of 619 per cent. of the entire population under daily instruction, in which respect Killelloe took the twenty-fourth among the 32 dioceses of Ireland. Of the above schools, in 1834, 14 were in connection with the National Board of Education.

Kilaloe, a small town on the Shannon, near the southern extremity of Dech Derg, takes its name from St. Luke, called Mo-Lua, who founded a cell there about the beginning of the seventh century. St. Flannan, his disciple, was consecrated first bishop of this see, at Rome, about A.D. 639. About A.D. 1195 the ancient sees of Innis-Cathy and Roscrea were annexed to Kilaloe, and in 1724 Kilaloe was erected into an archbishopric. The united diocese of Clonfert and Kilmacduagh, having become vacant, is now, by the 3 & 4 William IV. c. 37, also annexed to Kilaloe. The see lands of the diocese comprise 75,700 acres, of an average annual value in 1831 of 453£ 2s. 1d. The cathedral, which was erected by Donald O'Brian, king of Limerick, in 1160, is a crucifor-
building with a square tower. The episcopal palace is a handsome mansion, built of limestone overlying the Shannon, which here runs rapidly over a rocky channel. The stone-roofed cell of St. Molua stands near the cathedral. It is remarkable as a specimen of the building of the seventh century.

(Kare's Bishops; Beaufort's Memoir; Parliamentary Returns.)

KILLARNEY, a market and post-town in the barony of Magonihy and county of Kerry, in Ireland; distant from Dublin 147 Irish or 187 statute miles.
The establishment of iron works by Sir William Petty on the eastern shore of the Lower Lake of Killarney led to the erection of the town, which is distant from the lake about a mile and a half. It continued a small place till the end of the last century, when the proprietor, Lord Kenmare, invited several respectable families to settle there, and erected some houses for the linen manufacture in the vicinity. Soon after a new street, now the High Street of the town, was built, and a commodious hotel erected for the accommodation of visitors who about this time began to be attracted by the beauty of the neighbouring scenery. The working of the copper mines at Ross and Muckross contributed to the increasing prosperity of the town; and it has now become a place of considerable extent for many inches of the old class, as well as a favourite resort for great numbers of tourists each summer and autumn. It consists of two principal streets at right angles, with several smaller streets lying to them. At the southern end of the main street is the best part of the town, called Kenmare Place, near which is the entrance to Lord Kenmare's demesne, a finely timbered park, which greatly ornaments the approach to Killarney on this side. In the main street are two excellent houses, the church, which is a piscina, and old building, there is a large Roman Catholic chapel, a nunnery, and two subscription reading-rooms. The general appearance of the town is neat, and, during the summer and autumn, very动画.

Quarter-sessions are held here four times in the year, besides weekly petty-sessions. The court-house is a handsome stone edifice, having a bridewell attached. The old court-house has been converted into a theatre. Balls are occasionally given in the upper part of the market-house, which is an old building, now chiefly appropriated to the sale of linens. There are a fever-hospital, dispensary, and almshouse for the aged women, the last supported by the countess of Kenmare. There is a free-school for 400 males, under the superintendence of the Roman Catholic clergy, and, another for 300 females, attached to the nunnery, both of which are liberally patronized by the Kenmare family. There is also a free-school for 44 males and 34 females, under the superintendence of the clergyman of the Established Church, and a national school.
The number of inhabited houses in Killarney, in 1831, was 936; and of inhabitants 7910, of whom 6715 were in the parish of Killarney, and 1195 in the parish of Aghadoe. (Smith's Antient and Present State of the County of Kerry; Frazer's Guide-book for Ireland, Dublin, 1838; Parliamentary Reports and Papers.)

KILLARNEY LAKES. [Kerry.]
KILLAS, the local name of a group of rocks in Corkwall, ranked by geologists with the clay-slate, or granulaceous slate of other countries. The term is perhaps most properly applied to dense fissile argillaceous rocks, such as are usually called clay-slate; but it is often extended to other rocks, as a sandstone, or a schist, that are probable in geological position. (See Rev. J. Conybeare, Ann. Phil., new series, vol. v.)

Near granite the killas is supposed by many geologists to undergo great alterations of character, to become 'metamorphic,' so as to assume more or less of the characters of pyrogenetic rocks; these 'altered' rocks lie a great part of the mineral wealth of Corkwall; tin and copper veins abound in them, as well as in the contiguous granite, to whose influence their mineral characters are ascribed. Dr. B. Johnson, in his 'On the Geological of Corkwall," assigns to these rocks the title of Cornubian.

KILLENITE, a mineral which occurs both crystallized and massive. The crystals are imperfect; the primary form appears to be a rhombohedral prism. Cleavage parallel to the latter dia-parallel to the latter dia-

dral; fracture uneven; structure lamellar; colour greenish and brownish yellow; streak yellowish-white; lustre glimmering, dull, vitreous; transluc-
cent; opaque; specific gravity 2'698; hardness 4½; smell of the knife, fragrable.

By the blowpipe it becomes white, swells up, and fuse into a colourless enamel.

It occurs in granite veins at Killarney near Dublin, and is stated by Dr. Thomson to consist of

(Kare's Bishops; Beaufort's Memoir; Parliamentary Returns.)

KILLFENORA, a bishop's see in the archiepiscopal province of Cashel, in Ireland. It is confined to the baronies of Bunr and Corcomroe, in the county of Clare, and is visited seven times in the year by the prebendaries. It is assigned to the same with that of Killakee, excepting the prebendaries.

In 1792 it contained 19 parishes, constituting eight benefices, having three churches of the establishment. In 1834 the numbers were—parishes 19, benefices 6, churches of the establishment 3, other places of Protestant worship 4, Roman Catholic places of worship 15. In the latter year the gross population of the diocese was 36,405, of whom there were 233 members of the Established Church. 4 parishes were wholly appropriated, being in the proportion of 151 Roman Catholics to one Protestant nearly. In the same year there were in this diocese 25 day-schools, educating 2256 young persons of both sexes, or in the proportion of 6'14 per cent. of the entire population. As the only daily instruction, in which religion is taught, Killfenora ranks twenty-fifth among the 32 dioceses of Ireland. Of the above schools, in 1834, there were not any in connection with the National Board of Education.

There are authentic accounts of this see, which was antiently called Fanaholla and Cellumbanare, till a.d. 1178, when one Christian was bishop. Killfenora was first united to Clonfert A.D. 1741, and subsequently to Killalea A.D. 1753, which union still subsists. The see lands comprise 56,364 acres, of which the income is included in that of Killalea. The cathedral serves as a parish church; it is a respectable building, with a massive square tower.

(Kare's Bishops; Beaufort's Memoir; Parliamentary Returns.)

KILLINEY, a village near Dublin, where the junction of the granite and schist of the Wicklow mountains may be advantageously observed. The granite is hard, and contains plumeous mica. The edges of the schistose strata repose on a basis of granite. The schist is much contorted, and sometimes convoluted as to form concentric or spiral layers. A line of junction the schist abounds in crystals of andalud-grouped in a stelliform manner. Numerous veins issue from the granite, and intersect the micaeous schist. These veins contain fragments of micaeous schist. (Dr. Scouler, Memoanda of Outline of Geological Interest in the Vicinity of Dublin, 1835.)

KILMACDUAGH, a bishop's see in the archiepiscopal province of Tuam, in Ireland. It lies wholly within the county of Galway, extending along the south-western boundary of that county 23 statute miles by 15. The chapels consists of a dean, provost, chancellor, archdeacon, and two prebendaries. In 1792 it was divided into 60 parishes, constituting 15 benefices, having 14 churches of the establishment.

In 1834 the numbers were—parishes 21, benefices 4, churches of the establishment 4, other places of Protestant worship 1, places of Roman Catholic worship 14. In the latter year the gross population of the diocese was 8429, of whom 656 were members of the Established Church, and 45,476 were Roman Catholics, being in the proportion of 69 Roman Catholics to one Protestant nearly. In the same year there were in the diocese 32 schools, educating 3531 young persons of both sexes, being in the proportion of 7'70 per cent. of the entire population under daily instruction, in which respect Kilmacduagh stands sixteenth among the 32 dioceses of Ireland. Of the above schools, in 1834, there were not any in connection with the National Board of Education.

The see was founded by Colman, the son of Duach, a relative of Guaire, king of Connaught, who endowed the bishopric with large possessions about the end of the sixth century. Stephen Kerovan, bishop of Kilmacduagh, was translated to Clonfert A.D. 1562, since which time sees have been united. By the 3 & 4 William IV, c. 37,
...the Dye, Cowie, Carron, Bervie, and Luther, are small, but several of them contain valuable salmon fisheries. The roof and ling fishery along the coast, the salmon fisheries in Onich and Beauly, in Loch Linnhe and the haddock, skate, and turbot fishery, which is carried on with great activity, usually begins on the first of May, and closes about the middle of July. The herring-fishery has declined, in consequence, it is said, of the fish having forsaken the coast. The wearing of dowlas, household linen, &c. is the chief manufacture of the county, and employs about 700 men. The county is divided into 21 parishes, the aggregate population of which in 1831 was 31,491, forming 7196 families, whereas the number of persons employed in the manufacture of dowlas, handicraft, &c. and 1879 not comprised in the preceding classes. In all the parishes there are, besides the parochial school, several unendowed private schools, wherein writing, arithmetic, and English grammar are taught. The county returns one member to Parliament. The principal towns are Stonehaven, the county town, Bervie (Bervix), Johnshaven, and Laurenciekirk. Of these towns, Bervie unites with Montrose, Aberdeen, Brechin, and Aberdourwick in returning a member to parliament.

The old town of Stonehaven is reputed a borough of barony, but the charter of erection is not known to exist, neither has its date been ascertained. It is conveniently situated near the mouth of the Carron river, and possesses an excellent harbor, sheltered by a sand-bank, and under the protection of the cliffs, which form the north-east coast of Scotland. The harbor is entirely sheltered from the north-east by a quay, well adapted for the loading and unloading of goods. To the north of the old town, but adjoining to it, is the new town of Stonehaven, which, in point of wealth and population is of much greater importance than the other. It has risen suddenly, and is rapidly increasing, but it is neither lighted nor watched, and very imperfectly cleaned, from want of power to remove the dunghills kept at the doors of the inhabitants.

The old town has long been supplied with water from private wells, and a company has been formed within the last few years for the supply of the new town. According to the local reports of Commissioners in 1836, the wealthier part of the inhabitants were then very anxious to adopt the new Police Act, but the majority of the town were opposed to all assessment. The population, which in 1835 was estimated at 3050, is rapidly increasing. This is attributed partly to the cultivation of waste lands and partly to the increase of manufactures.

(New Statistical Account of Scotland; Beauties of Scotland; Parliamentary Papers, &c.)

**KING.** The primary use of this word is to denote a person in whom is vested the higher executive functions in an independent and sovereign state. The word person is limited to an individual with a share, more or less limited, of the sovereign power. The state may consist of a vast assemblage of persons, like the French or the Spanish nation, or the British people, in which several nations are included, or it may be small, like the states, or like one of the states while in England there were seven states independent of each other; yet if the chief executive functions are vested in some one person who has also a share in the sovereign power, the idea represented by the word king is of necessity of a more or less extended nature. It is even used for those chiefs of savage tribes who are a state only in a certain loose and colloquial sense of the term.

It signifies nothing whether the power of such a person is limited to one or several, or to no one man at all, or confined by custom and will, or whether his power be limited by certain incapable of death. Such a conception as that of a hereditary, or confining as the eldest son of a peer succeeds to his father's rank and title on the death of the parent, or is elected to fill the office by some council or body of persons selected out of the nation he is to govern, or by the suffrages of the whole nation. This is the conception of the office of king, who was an elected king; a king of England, who succeeded by hereditary right.

Still in countries where the kingly office is hereditary, some form has always been gone through on the accession of a new king, in which there was a recognition of the part of the people of his right, a claim from them that he should pledge himself to the performance of certain duties, and generally a religious ceremony performed, in which amounting in different countries to a coronation, or placing crowns, and placing on the head of the sovereign, or the person sharing in the sovereign power, is known as king; and these ceremonies seem to make a distinction between the succession of an hereditary king to his throne and the succession of an hereditary peer to his rank.

The distinction between the office ofking and emperor is not very clearly defined. Emperor comes from imperator, a title used by the sovereigns of the Roman empire. When that empire became divided, each sovereign, that of the West and that of the East, called himself an emperor. These titles were usually restricted to the emperors of Rome. The emperor of Germany was regarded as a kind of successor to the emperors of the West, and the emperor of Russia (who was and is often called the Czar), is, with less pretension to the honor of being a kingly emperor, that of the East. But we speak of the emperor of China, where emperor is clearly nothing more than king, and we use emperor rather than king only out of regard to the vast extent of his dominions.

*Emperor.*

The word king is of pure Teutonic origin, and is found slightly varied in its literal elements in most of the languages which are sprung from the Teutonic. The French, the German, and the English, as well as the modern Russians, on the other hand, have chosen to continue the use of the Latin word rex, only slightly varying the orthography according to the analogies of each particular language. King, traced to its origin, appears to be a Latin word. The Teutonic nations, who had given superior power, allied, as it seems, to be, knoe, con, can; but on the etymology, or what is the same thing, the remote origin of the word, different opinions have been held, and the question may still be considered under-mined.

There are two or three other words employed to designate the sovereign of particular states, in which we adopt the word which the people of those states use, instead of the word king. Thus there is the Shah of Persia, the Dew of Algiers, and the grand Sultan. In the United States of America very limited powers are given to one person, who is elected to enjoy them for a short period with the title of President. A Regent is a temporary king.

A personage in whom such extraordinary powers have been vested must of necessity have had very much to do with the progress and welfare of particular nations, and with the progress of human society at large. When held by a person of a tyrannical turn of mind, they might be made use of to the most signal injury, to the most cruel oppression of the masses who were governed, and to introduce among them all the evils and miseries of slavery. Possessed by a person of an ambitious spirit, they might introduce unnecessary quarrelling among nations to open the way for conquest, so that whole nations might suffer for the gratification of his personal ambition of one. The lover of peace and truth, and human improvement and security, may have found in the possession of kingly power the means of benefiting a people to an extent that might shame the most benevolent heart. But it must now by the long experience of mankind that become sufficiently apparent that for the king himself and for his people it is best that there should be strong checks in the frame of society on the mere personal and private pretension of kings, in the form of courts of justice, states, councils, parliaments, and other bodies or single persons whose concurrence must be obtained before anything is undertaken in which the interests of the community are extensively in- volved.

In most countries, as in England, there are controlling powers to such as these, and the executive and legislative power is nominally in some one person absolutely, the acts of that person are virtually controlled, if by nothing else, by the opinion of the people, who are the supreme power. This is more advanced in those countries which possess the facilities of communication and the knowledge of a people to advance.

Nothing can be more various than the constitutional checks in different states on the kingly power, or, as it is more usually called in England, the royal prerogatives. Such a subject must be passed over in an article of confined length...
such as this must be, else in speaking of the kingly dignity it might have been proper to exhibit how diversely power is distributed in different states, each having at its head a king, or other descendant of deep antiquity, or a bishop, or a pope, or a corporation, or some other office of this kind. The Lockean observations on the kingly office (now by hereditary descent discharged by a queen) [Queen], as it exists among ourselves.
The dawn of the English kingly power is to be perceived in the ancient history of England, as in that of nearly every other country, as king of the English. His family is illustrated by the talents and virtues of Alfred, and the peacefulness and piety of Edward. On his death there ensued a struggle for the succession between the representative of the Danish invaders and the claimant of the church, but which resolved itself in the authority of Egbert, and William then duke of Normandy. It ended with the success of William.

This is generally regarded as a kind of new beginning of the English monarchy; for William was but remotely allied to any of the Saxon kings. In his descendants the kingly office has ever since continued; but though the English throne is hereditary, it is not hereditary in a sense perfectly absolute, nor does it seem to have been ever so considered. For when Henry I. was dead, leaving only a daughter, named Maud, she did not succeed to the throne; and when Stephen died, his son did not succeed, but the crown passed to the son of Maud. Again, on the death of Richard I., his brother John claimed the throne, and was the son and daughter of an elder brother deceased. Then ensued a long series of regular and undisputed successions; but when Richard II. was deposed, the crown passed to his eldest son, Henry of Lancaster, son of John of Gaunt, son of Edward III., and the succession of the line of the English kings continued.

On the death of Queen Anne this law of the succession took effect in favour of King George I., son of the Princess Sophia. Now the heir succeeds to the throne immediately on the death of the sovereign, without any change in the law; but if the king were to die childless his next heir would be the daughter of his brother, who has no children.

But it is supposed that antiently there was a short intermission, and that the whole of the royal power was not possessed till there had been some kind of recognition on the part of the people.

The king makes oath to three things—that he will govern according to law; that he will cause justice to be administered; and that he will maintain the Protestant church. His person is sacred. He cannot by any process of law be called to account for any of his acts. His concurrence is necessary to every legislative enactment. He sends embassies, makes treaties, and even enters into wars without any previous consultation with parliament. He nominates the officers of state, the commands of the army and navy, the governors of colonies and dependencies, the bishops, deans, and some other dignitaries of the church. He calls parliament together, and can at his pleasure prorogue or dissolve it. He is the fountain of honour: all hereditary titles are derived from his grant. He can also grant privileges of an inferior kind, such as rights of exclusive trading, and of markets and fairs.

This is but a very slight sketch of the power inherent in the kings of England; but the exercise of this power is limited by certain circumstances: first, the king cannot act politically without an agent, and this agent is not protected by that irresponsibility which belongs to the king himself, but may be brought to account for his acts if he transgresses the boundaries of the duties which are imposed on him, and which arises of applying to parliament for supplies of money gives to that body virtually such a control over the exercise of the royal prerogative, as amounts to a necessity of obtaining its concurrence in any public measure of importance.

KING, WILLIAM, born 1650, died 1729, a native of Ireland, and a bishop and afterwards an archbishop in the Irish church. He is the author of two works on subjects connected with the Inventions of Men in the Worship of God, which was intended to reconcile the Presbyterians of Ireland to the episcopal form of church order. But his greater work is his treatise on that difficult subject the Origin of Evil, which is written in Latin. His approach to the existing problem is the one made by the author of the Book of Job, and he accounts for the plagues and pestilence by the cruelty of God. His work is written in a most satisfactory manner, and he discusses the answers to his arguments, and these were given to the world after his death by Dr. Edmund Law, bishop of Carlisle, with a translation of the treatise itself. He printed also a sermon on the 'Inconsistency of a Christian Profession and Fore-knowledge with the Freedom of Man's Will.'

In politics he was a true friend to the Revolution. He was made dean of St. Patrick's, the first considerable piece of preferment which he enjoyed, in 1688. In 1694 he was made bishop of Derry, and in 1702 archbishop of Dublin. He was through life held in high esteem as a man, as well as in his character of a procate and writer on theology.

KING GEORGE'S SOUND is situated on the south coast of Jutland, which separates Denmark from the mainland of Norway. It is the strait through which the commerce of that continent, in 32° 2' 30" S. lat. and 118° 1' E. long. It consists of an outer sound and two inner basins or harbours, which are perfectly land-locked and afford every security for ships. The northern basin, called Oyster Harbour, is a lake about three miles in circuit, with more than a mile of water. The other basin, called Princess Royal Harbour, is situated on the west side of the Sound; vessels of a considerable size may enter it, and ride at anchor close to the shore in perfect security. There is no harbour within a greater distance of it, either on the southern or western coast of Australia, which offers such advantages. The Windward Sound, George's Sound, and Cook's Sound were all named by Secretary Bligh, as having been visited by Cook early in 1768. This settlement has been of great advantage to the colony of the Swan River, which was settled at a later date. It is very conveniently situated for the purposes of refreshment and re-fitting vessels bound to Cook's Land (New South Wales) and Tasmania (Van Diemen's Land), and is frequently resorted to by sealing vessels. The neighbouring coast to the eastward is fringed with numerous rocks and islands, upon which many valuable furs are found, which extends far to the country about it is partly hilly and partly level, and covered with swamps; it is of moderate fertility, but enjoys a fine climate and a sufficiency of rain for all the purposes of vegetation. The natives resemble those in the neighbourhood of the Sound, and are very disposed to trade for European articles; Nind, in Journal of London Geogr. Society, vol. 1. KINGFISHERS, Halcyonidae, a family of the Alcedinidae tribe, of the order Insectivora, or Perching Birds, according to the system of Mr. Vigors. [Ibis.]

In Willughby's 'Ornithology,' edited by John Ray, the 'Kinfisher—Impisius unuorman Alceo P.' is placed at the head of 'Land-Birds that feed upon Fish.' Ray, in his 'Synopsis,' gives the bird the same title and position; but the writer varies a little from that of Willughby; for Ray makes the Kinfisher the first of his Aves terrrestres, aquas frequentantes, rottria longis, piscivora.

Briséis arranged the Kinfishers (Martin-pêcheurs) in company with the Todies, as the two genera forming the third section of his fourteenth order, consisting of those birds which have the middle of the three anterior toes united to the external one up to the third joint, and to the internal one up to the middle joint.

Latham's second order, Piscivora, is divided into three sections. The third of these consists of birds with gosserolae feet, and consists of the Motmot, the Hornbills, the Kinfishers, the Todies, and the Bee-eaters. Leopold's thirteenth subdivision consists of birds whose...
external toes are united almost throughout their length (platyopes): his seventeenth order (which, with the sixteenth, eighteenth, nineteenth, and twentieth, comes under this subdivision), consists of the genera Alcedo and Galbula.

The tenth and last family of M. Duméril's second order (Passerreaux) consists of the Temnatorus or Leptorrhamphehs. It contains many genera, the Kingfishers, the Todies, the Bee-eaters, the Humming-birds, the Cremers, the Hopeori, &c.

The fourth order in the method of M. Meyer comprises the genera Merops and Alcedo only.

Illiger's Ambulatores form his second order, the first division of which, to the sixth in rank, the consecutive number, is termed Angulirostres. This division comprehends the genera Alcedo and Merops only. It is preceded by the Syndactylida, the last division of his first order, Scansores, and the Syndactylida consist but of one genus, Galbula, which singularly succeeds the Suriptes and Tachius that is the only genus of this division.

Cuvier's Syndactylida, the fifth division of his second order, Passerreaux, comprise the genera Merops, Primoties, (Motmot), Alcedo, Ceyx, and Buceror.

M. Vieillot makes the Sylключийe the second order in his arrangement. The second tribe of this order (Antisodactylia) is made up of numerous families. The twenty-four consists of the Bee-eaters and Kingfishers. It is immediately preceded by the Pycnonoidea, and immediately succeeded by the Anisodactylia (Rupicola), the twenty-sixth (Prionoties) consisting of the Motmots and Calao (Hornbills).

The Alcyones, the seventh order of M. Temminck, consist of the Bee-eaters, the Kingfishers (Martin-pîcheurs), and the Kingfisher-chasseurs.

In the method of M. de Blainville his Scansores are divided into the Hétéroactylida, the Zygodactylida, and the Syndactylida. Alcedo (Linn.) is the representative of the latter. In the method of the same zoologist, as developed by M. Lherminier, the Kingfishers (Martin-pîcheurs—Alcedo, Linn.) are placed in the first or normal subclass, and form the thirteenth family, coming between Merops and Buceror.

Mr. Vigors, in his paper 'On the Natural Affinities that connect the Orders and Families of Birds,' observes, that if the genus Todus of authors be examined with reference to its general affinities, an intimate resemblance will be found between it and the succeeding group of Halcyonidae; since the only species known when he wrote exhibits the exact representation of a Kingfisher, with the exception of a shorter and more depressed bill. He is of opinion that we are thus conducted to the Halcyon of Mr. Swainson, a genus which exhibits a extremely distinct and well-defined region however—and with justice—that the name had not been retained for that group of the family which includes the European Kingfisher, the bird known to the antients under that name), and from that genus to the Daceo of Linn., which he points out as the more similar to the Todus of his father, further}? looking a more completely-defined bills of the succeeding family of Meropidae. In the group of Halcyonidae he places the Galbula of Brisson, which, though distinguished from the groups of which Mr. Vigors is treating by its syndactyle feet, and such arranged by modern writers among the true Scansores, was, Mr. Vigors observes in continuation, originally included in the genus Alcedo by that great master of natural affinities, Linnaeus, on account of the identity of the general structure and economy of both genera. Here Mr. Vigors thinks that it must necessarily be placed, if we look to natural affinity rather than the strict dictates of artificial arrangement; and that it is mere accident that some apparently con-terminous groups, Capito of Vieillot, and some of its affini- ties, &c., of which the toes are equally disposed in pairs. The relationship of all to the true Scansores may, he says, be accounted for by the consideration of that tendency which causes a circle of birds generally to approach each other. The very difference however be- tween the feet of Alcedo and Galbula (which two groups, at the same time, he adds, it must be remarked, agree more intimately in every particular of the leg and foot, except the number of the toes of the latter only, for both Galbula agrees with any of the Scansores in the same characters) is lost in a species of Galbula which Mr. Vigors had lately inspected from Brasil, where one of the hind toes is wanting, and where the foot thus exactly corresponds with that of the three-toed Halcyonidae, or the genus Ceyx of M. Lacedebóle. The singular and beautiful species of the Linneman Alcedo, the Tornare Kingfisher, which Mr. Vigors characterizes as a genus under the name of Tornata, shows, in his opinion, the tendency of the approximation of the toes, and a deviation from its own type, its tail deserting the shortened character of that of the true Kingfisher, and assuming the lengthened and graduated conformation of the same more nearly to the Pseudonaiad or tailed Galbula. Having now arrived at the last family of the tribe, Mr. Vigors directs us to look for that connecting affinity which will lead us back to that other family of it with which he commenced his observations. Here again, he remarks that the proportionately united tail between the Halcyonidae and the Meropidae leaves him nothing to observe. He refers to the gradually-attenuated bills of Alcedo and Galbula, and the increasing length of the tail in the latter genus, as softening down the differ- ences by which these families, united by general habits and economy, alone appear to be separated. Thus the circular succession of affinities by which the tribe of Passerreaux returns into itself appears to Mr. Vigors to be complete.

The fifth last family of Latreille's second order (Passerreaux) consists of the Bee-eaters, Motmot, Todies, Kingfishers, the genus Ceyx, and the Hornbills. The fourth family comprises the Temnatorus, and the Scansores (Grimesperus) form the order which immediately follows the Passereaux.

The Prince of Musignano (C. L. Bonaparte) in his 'Tabella analitica de Generi' (Specchio Comparativo, 1827), makes the tribe Ambulatores immediately follow the tribe Scansores. It is the first family of the Ambulatores consists of the genera Alcedo and Merops.

In M. Lesson's 'Project' the third tribe (Syndactylidae) of the first order, Inessors or Scansores (Grimesperus), includes four families, in the following order:—Meropidae, Halcyonidae (Alcyones), Rupicolidae (Rupicolies), and Buceridae.

In the 'Table Mетодique,' at the end of his 'Manuel,' he makes the family Meropidae comprise the genera Meropu, Alcedo, Dacelo, Ceyx, Synca, Todiramous, Motmot, and Buceror.

Mr. Eyton, in his arrangement, published in his 'History of the Rarer Species of British Birds' (1836), makes his fourth family (Temnatorus, Cuv.) of his second order (Passerreaux, Linn.) consist of three divisions—1st, the Antisodactylida; 2nd, the Syndactylida; 3rd, the Alcyonidae, Temm. The latter division contains the genus Alcedo, Ray, whilst Merops is arranged under the Syndactylida.

Mr. Swainson, in the 1st volume of his 'Classification of Birds' (1836), when treating of the Syndactylid foot, allows the term to be good, if limited to such feet, with united toes, as are of a different formation to all others, and would not, even if the toes were free, come under any of the def- initions of the by nearer genera. The name of Alcedo he says, will be found in the genera Merops and Alcedo, con- taining the Bee-eaters and Kingfishers, to whose feet, 'par excellence,' he limits the term Syndactylida. 'The habits of these two groups,' continues Mr. Swainson, 'as far as concerns the use of their feet, are nearly the same, for in neither are these members ever employed but to rest the body. The Kingfisher watches patiently from a fixed station, generally a naked twig overhanging the water, for such fish as come within its reach, and then, after a short flight to another station, where it alights and remains. The feet, from not being used for walking or standing, are consequent very small, and the toes imperfectly developed; there are three in front and one behind, but two of the former having the toes united as one, since they are united together even to the commencement of their re- spectiue claws; the inner toe is not half the length of the others, and seems rudimentary: it has a claw, and is rather the hinder than the inner toe. In the second group, in the three-toed Kingfishers, this inner toe disappears. The hinder toe is very short, and scarcely longer than the inner one; the scales of the whole foot are so thin and transparent that they can scarcely be seen in the small natural size. They are generally placed three to a branching, and one of the true Kingfishers, so scarce in England, but so com- mon in Tropical America, know that they never perch upon any other than small or slender branches; and this we may infer from the shape of the foot. The two outer anterior
Toes are very long, so that they would completely clasp two-thirds of the circumference of a small branch, the other parts being held by the feet. This arrangement is confirmed by the unusual flatness of the soles of all, and by the acuteness of the claws, which, from being but slightly curved, would not upon a small branch come into contact with the wood; the union of the three anterior toes, by a considerable breadth of sole, gives an unusual degree of steadiness to the bird, highly conducive to its remaining very long in one position. Thus we see that the feet of the Kingfisher, which at first appears so very imperfectly so, are in reality perfectly organized, and which is most of all suited to the habits and the wants of the bird. The Bee-eaters, like the Swallows, feed upon the wing, yet, unlike these birds, they never perch upon the ground; at least we can affirm this of the European species (Meropidae), which visits the island of Sicily every year in great numbers, and remains for near a month, on its voyage from Africa to middle and southern Europe. During this period we have sought for many years every opportunity of detecting these birds in their resting position, but we were never successful in finding them otherwise than in the tops of the olive-trees, where they rest immovably until they again dart off for another long excursion. It is indeed obvious that they could not walk, for their feet are not at all in the same group as the Wood swallows (Dacelo), with this only difference, that the three anterior toes are divided to a whole length of their last joint, the scales being rather more conspicuous.

In the second volume of the same work Mr. Swainson states that the Alaconta of the Alcedo, or Kingfisher, is obviously connected with the Meropidae, next to which he arranges them. He thus confines, he observes, several well-marked genera, ranging among themselves in the great length of their bill and in the extreme shortness of their feet. These characters, in a sense, are added, it is true, belonging also to the true Bee-eaters; but a remarkable difference in economy is developed in the Kingfisher. 'We have seen,' continues Mr. Swainson, 'that the kingfishers, Swallows, and Bee-eaters traverse the air to and from their prey; their wings are consequently adapted for long and continued flight; but the swallows before us have a different economy, and therefore a different organization. The whole of the genera are sedentary, visiting for their food a fixed station, which they only quit as soon as their prey approaches sufficiently near to come within the sweep of their wings; if unsuccessful in their first attack, they do not pursue their game, but return again to their post, and patiently wait for another luckless straggler; if their first attack is successful, they return with their victim to the same station, and proceed to swallow it. Every one knows that these are the habits of the European Kingfisher (Alcedo atthis), and the kingshunters (Halyon) pursue the same method in the forests of the Old World. But it is unfortunately happened that systematic naturalists totally unacquainted with the natural habits of the other genera (nearly all of which are confined to Tropical America) have fancied they were climbing-birds, and have consequently placed them in other orders whose organization and economy are widely different. Thus the Jacamars, in the Jacamaria, are placed after the Hornbills, and the Kingfishers (Tambà) are associated with the Cuckoos."

The following characters are assigned by Mr. Swainson to the Cididae: Wings rounded, not formed for rapid flight. Feet very long. Toes in pairs.

And he makes the family consist of the following genera and subgenera—Genus Tamsia, comprising Tamàia; Av.; Cipàio; Volié; Lympronx, Wagler; Monasa, Wagler; and Brachyptery; Sw.—Genus Halyon, Sw., including Dacelo, Lechon; Halyon, Sw.; Surnia, Lechon; Todirionyx, Lecher; and Geza, Lecher, comprehending Alcedo; Japracea, Sw.; Tomamatera, Lecher; and Aclon, Sw.—Genus Lampària, Sw.—Genus Iatbula, Linn. (Brison, we suppose, is meant; Linnaeus has a such genus). Tamsia. (Puff-Birds.)

Generic Character.—Bill straight, compressed. Nostrils furred by long, stiff, incurved feathers and bristles. Incus strongly bristled. Toes versatile, as in Cuculus (Swainson). Under the article Barbet, vol. iii., p. 834, the reader will find a figure of Tamàia micropíriphæos, and Mr. Swain-

son's description of the habits of the Puff Birds in general. In his Classification of Birds, vol. ii., the same author states that the Horned Birds (Monasa) have similar habits, and frequently rise up perpendicularly in the air, make a swoop, and return again to their former station.

The subgenera he characterizes as follows:

Tambàia.—Bill moderate, thick, cone; the tip but slightly bent. Tail narrow. Comorial (T. maculata, 'Brazil Birds,' p. 11.)

Capito.—Bill long; the tip abruptly bent, so as to form a hook. Tail narrow. Dentirostral (C. leucotta, 'Brazil Birds,' p. 11; C. convolventus, Íb., p. 3.)

Lympronx.—Bill moderate, defended by very long bristles. Both mandibles nearly equal. Wings very short, rounded. Tail narrow. Tenurostral (l. lirata, 'Brazil Birds,' p. 34; L. rubecula, Íb., p. 23.)

Monasa.—Bill as in Lympronx, without the basal bristles, but with short setaceous feathers. Wings short. Tail lengthened, and very broad. Seasnorial. (M. leucops, 'Brazil Birds,' p. 12.)

Brachyptery.—Bill as in Lympronx, but shorter, higher, and more curved; the margins greatly inflexed. Wings long. Tail short and even. Fissirostral. (B. tenebrosa, 'Brazil Birds,' p. 33.)

Geographical Distribution.—All these are inhabitants of the New World. Halyon.

Generic Character.—Bill long, very straight, cylindrical; the sides widenced; the base more or less depressed; gony's ascending. Feet stylacide. (Swainson.)

The following subgenera are thus characterized—Dacelo.—Margin of the upper mandible considerably narrowed near the tip. Wings lengthened; the quills slightly nucrenate. Tarsus covered with rough scales. Australian range. (Sw.)

Example, Dacelo gigantea. White's 'Voy.' p. 2. (Sw.) Dr. Leach thus describes Dacelo gigantea, the Gigante Dacelo, Alcedo gigantea of Latham, Alcedo phasea of Gmelin. Body olive-brown, beneath white; tail banded wide, and forunous, the tips white; upper mandible blackish, under one whitish with a blackish base. Male, with its head slightly crested, the crest fuscous; legs yellow; belly banded with blackish. Female, with the head broad, without a crest; legs brown. (Zool. Misc., vol. 2.)

Dacelo gigantea.
the Great Brown Kingfisher is described at length, with the observation that these birds vary much, the colours being more or less brilliant, and in some of them the tail is stated to be wholly barred with white and black, and the legs brown or blackish. The species is there said to inhabit various places in the South Seas, being pretty common in New Guinea; but the specimen, from which the figure given in the work was taken, was sent from Port Jackson, where it is said to be not unfrequently met with. It is the 'Laughing Jackass' of the colonists of Sydney; and cuck'undra of the natives, according to Lesson, who says it is very common on the banks of Fish River, where he killed a great number.

Halecyon.—Bill long, straight, broad, nearly quadrangular; culmen slightly inclining towards the tip, near which the margin is slightly sinuated; gape smooth. Wings broad, short, rounded. Tail very short. Foot syndactyle; scales of the tarsus obsolete. (Sw.)

Example, Halecyon cinnamomina. (Sw.)

The generic character above given appears in Mr. Swainson's 'Classification of Birds.' In his 'Zoological Illustrations' (1st series), he states that the two extreme points of difference in the Linnean Kingfishers are seen in Alcedo tytida and A. gigantea, the last of which has been made into the genus Dacelo. It will nevertheless be found that from among the birds left in the old genus there is a great number (of which indeed this bird, Halecyon cinnamomina, as it is there named, is a striking example), which are much nearer allied to Dacelo than to Alcedo, where they now stand. It will appear therefore more natural to consider Halecyon and Dacelo as one genus, which may be called by either name, but which must be distinguished by the characters herein given to Halecyon, inasmuch as the generic definition of Dacelo (found on one bird) will be found too restricted to comprehend all.

Mr. Swainson then proceeds to give the following description of Halecyon cinnamomina, Cinnamon Crab-eater, from a bird in the possession of Mr. Leadbeater, by whom it was received from New Zealand, and who gave Mr. Swainson the opportunity of publishing his figure and description.

Total length ten inches; bill two and a half from the gape, and one and a half from the nostrils; the tip of the upper mandible with a slight inclination downwards, and with an appearance of a notch; the whole head, neck, and under plumage of a delicate fawn colour; under wing covers the same; the remaining upper plumage with the wings and tail changeable blue-green; ears sea-green and dusky united to a narrow black nuchal collar; wings four inches long, and the tail, which is even, three and a quarter; the hind head is slightly crested, and the feet pale brown. (Sw.)

N. B. The sub-genus Halecyon, as given in Mr. Swainson's 'Classification of Birds,' vol. ii., consists of many species with a wide geographical distribution in the Old World.

Syma.—Bill long, enlarged at the base, compressed and thin on the sides towards its extremity, upper mandible slightly curved from the base to the point (which is very sharp), and longer than the lower mandible, which is recurved. The nostrils are not quite convex, and very sharp at its point, which is lodged in the groove (rainure) of the upper mandible. Edges of both mandibles furnished for two-thirds of their length with sharp serrated teeth, strong and numerous, and directed backwards. The lower space around the eye naked. Third and fourth quills equal long, the first short. Tarso moderate, the three anterior toes united, the external toe shortest. Wings short. Tail moderate with unequal feathers to the number of ten great ones, and two small external ones. (Lesson.)

Example, Syma Torotoro, Less.; Alcedo ruficeps, Can. Description.—Length seven inches from the tip of the bill to the extremity of the tail. The Bill two inches from the commissure to the point, and the tail twenty-seven lines. Colour.—Bill entirely of a brilliant golden yellow; head and cheeks of a bright uniform cinnamon yellow separated by a brighter tinge in the form of a collar from the mantle (mantua) by two spots of a deep black, when seen from below, which unite upon the back with a metallic black circle; feathers of the mantle velvet-black, those of the wing-coverts uniform blue-green, rump bright green, quills brown within and bordered with metallic greens and yellows; a fan of twenty-purple and green feathers equally long and spread out in a semicircle round the base and spread below. Throat of a light but very clear yellow, which becomes deeper on the sides of the belly and breast, to become lighter and pass into whiteness on the abdomen (bas-ventre). Feet rather strong, of a bright yellow: bill black. (Lesson.)

M. Lesson, who established this genus, states that it haunts the banks of the sea, among the Mangroves—[Bruguiera]. He says that it skims the shores (graves) for the purpose of seizing as it flies the small fishes. He says that this little bird may be而且 a great many individuals skimming in their flight the waters of the small streams which are discharged into the harbour of Doréy at New Guinea, and he says that the Papuans name the bird 'torotoro,' doubtless from its cry.

Todiramphus.—Bill straight (the lower mandible very slightly swollen or convex), very much depressed, wider than it is high, without any arête, the mandibles equal, obtuse at the end and flattened, the edges being entirely smooth. Nostrils oblong, the fissure oblique and basal parent, bordered by the frontal feathers. Wings short, rounded; first quill shortest, and the fourth longest. Tail long, the feathers equal, and twelve in number. Tart more, (Legated, moderate, and reticulated. (Lesson.)

Geographical Distribution and Habits of Todiramphus—M. Lesson, who established this natural group states that they live in the islands of the South Seas. They inhabit the woods, and perch almost constantly on the cocoa-palms (Cocos). Their nourishment is only composed of small flies (moucheron), which seize when the insects come to pitch on the spathes charged with the flowers of the palm. The Islanders name them O-tatoré. They were sacred birds, and it was forbidden to kill them under severe penalties. Their skins were offered to the great god Ori.

Example, Todiramphus sacer: Alcedo tuta, Gm. and Latham; Alcedo sacra, Gm. and Latham; Sacred King-fisher.

Description.—Total length, eight inches six lines; bill twenty-one lines from the commissure to the point; tail, three inches. Bill black, white at the origin of the lower mandible; summit of the head covered with brownish-green feathers, which form a sort of hood (cubiti), separated from the neck by a narrow streak which is blue above the eyes, and continues behind the occiput. A large black line (frat) springs from the eye, and taking a time of green and then of brown, forms a border to the white line, which incises it. The breast, broad and from the upper part of the body pure white; a very large, whitish, demicollar, waved (sinuolc) with light brown and very light chestnut, occupies the upper part of the mantle and is bordered with black; the back, coverts of the wings, rump, upper part of the tail and wings, are uniform brilliant green.
the greater quills are brown and blue on their external border; the other quills (*remiges secundae*) terminated with brown. Tail brown below. *Tars* black. The wings extend to the upper third of the tail.

M. Lesson, whose description we have selected, says that the species is very common in the Islands of Otaheite, or Tahiti, and Bora-bora. It perches on the cocoa-palms, and the natives call it *Otataré.* Its flight is short, and it is not timid. It lives on the insects which the honied exudations of the cocoa-flowers attract. This species and *Pitta* are *Tahitiens* remain constantly on the cocoa-nut trees, which form girdles on the shores of all those islands.

Dr. Latham remarks that his Sacred King's fisher has been found in Dusky Bay, New Zealand, where it is called *otataré.*

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**Ceyx.—** Bill entirely straight, long, a little flattened vertically, the mandibles of equal height, smooth on their edges, having each a rounded *arête* on their middle and the points equal and blunt; *noustrils* basal, oblique, and small. *Third quill* the longest. *Tail* very short, the feathers slightly unequal. *Tars* short, delicate, with only three slender toes, of which the two anterior are strongly united, and the bind toe free. (Lesson.)

M. Lesson remarks that the genus is founded on the *Alcedo tridactyla* of Latham, of which the Martin-pêcheur de l'île de Lupon of Sonnerat is only regarded as a variety. He also notices the *Ceyx azurea*, *Alcedo azurea* of Latham, and the *Ceyx Meninting* (*Alcedo Biru* of Horsfield?). He remarks that *C. azurea* was killed on the edge of the harbour of Doréy, in New Guinea, and that Latham indicates Norfolk Island, and Lewin, Port Jackson, as its habitats. The *C. Meninting* (Meninting-watu, or **Burning Biru** of the Javanese), which he considers identical with *Alcedo bengalenus* of Edwards, inhabits, he says, the banks of the small streams round the harbour of Doréy, in New Guinea.

Dr. Horsfield describes the *Burning-Biru* as by no means uncommon in Java. He observed it chiefly in the interior, in low situations; but it was also found in the maritime districts. Its habits and manners were those of the European Kingfisher. It darts in short rapid flights along the surface among rivulets and lakes, emitting as it moves shrill sounds on a high key. These sounds are so strong and acute, that when the bird is near they strike the ear in an unpleasant manner. It is not unfrequently observed perched on trees on the banks of rivulets, and its food consists of small fishes and aquatic insects. (Zool. Researches in Java.)

Sonnerat describes his second species of Kingfisher, from the Isle of Lapuran, as about one-third less than the European Kingfisher, and as one of the most brilliant of birds. The whole head, the neck behind, the sides of the neck, the back, the rump, and tail, are of a deep lac; the wings indigo-blue, approaching to black, but a bright and shining border of blue surrounds each feather; the throat, the neck, the belly, and the under part of the tail are white; the bill is very long, of a carmine-red, 'dont la nuance est
according to the Prince of Musignano; Gemeine Braunvogel (Boehme) and Großer, Kleiner und Fremder Eisvogel (Brehm) of the Germans; Glis y dorian of the antient British, and Common Kingfisher of the modern British.

Whether this species is one of the birds named ἀλευρόν (Halcyon) or ἀλευρων (Alcyon)—for some of the learned divest themselves of the word should be apostatised on account of the Aristotelian and the Greeks, is by no means satisfactorily made out, though the better opinion seems to be that it is the ἀλευρων of the Greek zoologist. Belon and Pennant think that it is; Klein and M. De Bémoré, on the contrary (and Camus seems to agree with them), consider it as doubtful which of our birds was meant by the Halcyon of the ancients, whose seven placid days while brooding over its poetical floating nest have become proverbial.

The nest is blackish-brown, the crown of the head deep olive-green, the feathers tipped with verdigris-green. From the nape of the neck to the tail is a strip of verditer-blue feathers, tinged in some shades with verdigris-green. Chin and throat yellowish-white. Breast, belly, and vent orange-brown, palest towards the undertail-coverts. Tail greenish-blue, the shafts of the feathers black. Legs pale tine-red. (Selby.)

The irides are hazel. The bill of the female is not so long as in the other sex. The colours also are deeper and much more of a grey.

Reproduction, Habits, Food. Setting aside the fable of the floating cradle in which during the Halcyon days the bird was said to rear its young, we shall find that ornithologists have differed not a little as to the actual nest of this bird. The noblest that Pennant says that the nest is in the sides of cliffs, which it scoops to the depth of three feet, and in holes in the banks of rivers, chiefly those which before belonged to the water-rat; and he states the number of the eggs to be from five to nine, or as the most beautiful transparent white. The nest, he adds, is a very fine building. The egg is of several shades of verditer-blue, and if it was transparent within, that the entrance was very narrow, so that if it should upset, the sea would not enter; that it resisted any violence from iron, but yielded to a blow of the hand, and when thus broken was soon reduced to powder, and that it was composed of the bones of the Belone (Belone)—sea-fish so named—for the bird lives on fish. Aristotle then states that the number of eggs at five or thereabouts (Hist. Anim., ix. 14). Pennant, who, as we have observed, considers the Marbler Kingfisher to be the common kingfisher, observes that much of the description above quoted must be founded on truth. The form of the nest, he remarks, agrees almost exactly with the curious account of it by Count Zinzendorf. The materials, which Aristotle says it (the nest) was composed of, are not mentioned in the invention.

Whoever has seen the nest of the kingfisher will observe it strewed with the bones and scales of fish, the fragments of the food of the owner and its young; and those who deny that it is a bird which frequents the sea must not confound their ideas to our northern shores, but reflect, that birds inhabiting a sheltered place in the more rigorous latitudes may endure exposed ones in a milder climate. And Pennant made these observations in the East, and allows that the Halcyon sometimes succeeds to breed for us from Zinzendorf, that in his soft climate, Italy, it breeds in May, in banks of streams that are near the sea; and having brought up the first hatch, returns to the same place a second time.' Now, it will be observed that Pennant, in his own description of the nest, speaks of nothing but the hole and the sediments; and though Zinzendorf gives a very good description of the excavated hole, he speaks with caution of the collection of fish-remains that should be expected, says of the sediments, of which the nest was covered, 'restrore vagamente intrecciate,' he adds, 'ma forse non sono così disposto ad arte, bensì per accidente,' showing that he thought their disposition about the nest was probably more the result of accident than design.

Montagu, in his Ornithological Dictionary, says that the bird generally takes possession of a rat's hole to deposit its eggs, be he proceeds as follows: · The many curious accounts which have been given of the nest of this bird induced us to take some pains to discover the fact. The result of our researches are (is), that the hole chosen to breed in is always ascending, and generally two or three feet in the bank; at the end is a scooped hollow, at the bottom of which is a quantity of small fish-bones. In this hollow the female begins to lay, and that they dry it by the heat of their bodies, as they are frequently known to continue in the hole for hours, long before they have eggs. On this disgorge the matter the female lays to the number of seven eggs, which, when full grown, float in the surface of the water in a sort of oval form, weighing about one dram. The hole in which they breed is by no means fouled by the castings; but be fore the young are able to fly it becomes extremely fetid by the fumes of the brood, which is (are) of a watery nature, and cannot be carried away by the parent birds, as is common with most of the smaller species. In defect of which, instinct has taught them to have the entrance of their habitation ascending, by which means the filthy matter runs off, and may frequently be seen on the outside. We never could observe the old birds with anything in their bills when they went to feed their young; from which it may be concluded they eject from their stomach for that purpose.'

Mr. Selby, after noticing the ejection of bones and other digested matter in pellets, but goes on to state that they breed in the banks of the streams they haunt, either digging a hole themselves, or taking possession of that of a water-rat, which they afterwards use in a manner larger than that of any other bird. The following is the account of the nest: 'The bearing of the hole is always diagonally upwards, and it pierces two or three feet into the bank. The nest is composed of the above-mentioned pellets of fish-bones, ejected into a small cavity at the farther end of the nest, which is hollowed out of the earth, and to the number of six or seven, of a transparent pinkish white. He then quotes the remarks of Montagu on the sloping direction of the hole, and the use of that direction in carrying away the offensive matter. (Illustrations of British Ornithology, vol. i.)

Mr. Rennie, in his editor of Montagu's Dictionary, observes, that from the high authority of Montagu, the description above given has been copied by every recent writer, with the exception of Temminck, who leaves the subject, and Wilson, who says (Am. Orn., i. 69), of his belted kingfisher (Alcedo Alcyon), that its nest 'is neither constructed of glue nor fish-bones.' Mr. Rennie then proceeds thus: 'We are certain of the fact that this will be similarly stated by our own successors, for from a stream at Lee in Kent, we have been acquainted with one of these nests in the same hole for several successive summers, but so far from the exuviae of fish-bones ejected, as is the case with the kingfisher, we have noticed and the entrance to the nest there is, generally either in the floor of the bank, and when the water is raised in the summer, the nest is simply a sort of mound of earth in the stream. From Mr. Lear's account, and from the form of the nest, they are scattered about the floor of the bank in all directions, from its entrance to its termination, without the least order or working up with the earth, and all moist and fed. That the eggs may by acedia be laid upon the orifices of these fish-bones, is highly probable, as the floor of the water is so thickly strewn with them that no vacant spot might be found, but they assuredly are not by design built up into a nest. The hole is from two to four feet long, sloping upwards, and the sides and base, are but widening in the interior, in order perhaps to give the bird room to turn, and on the same apparent reason the eggs are not placed at the extremity. I am not a little sceptical as to its sometimes selecting the old hole of a water-rat, which is the deadly enemy to its eggs and young; but it seems to indicate a dislike to the labour of digging. It frequents the same hole for a series of years, and will not abandon it, though the nest be repeatedly plundered of the eggs or young. The accumulations of the shells, that in one of these old holes has perhaps given origin to the notion of the nest being formed of the shells.'

Mr. Gould, in his Birds of Europe, states that the eggs are deposited in a hole, such as those above alluded to, by the female, without making any nest.

But Temminck ('Manuel, 1809) says that the birds nestles in holes in the earth, most commonly under the alabund Typical, that is, in banks of rivers, often under the roots of trees, in the hollows of trees, and sometimes in the holes of rocks, and that it lays from six to eight, eggs, of a white color.
Small fish, such as Sticklebacks and Minnows, form the food of the Kingfisher principally, but M. Temminck and Mr. Remie say that the bird will also eat fry or spawn (fish), slugs, worms, and beetles. It sits immovable on some overhanging twig, watching for its prey, and when it has secured a passing fish by a sudden dash, beats it to death against a stone on the ground, and then swallows it. At other times it will hover suspended over the water and dart on its prey, but the bird usually makes its attack from a station. The editor of the last edition of Pennant states that it has been seen balancing itself over the water in which a great many of the small, round, shining beetles were swimming swiftly in circles (Luebrigus mutator?), and which it makes its prey.

This species, when adult, appears to be mute except at the season of pairing; but the young are very clamorous, and frequently betray their retreat before they leave the nest—which they do not quit till they are fully fledged—by their cries. Before they provide for themselves, which they soon do, they sit on some branch while the parents fish for them, and on their approach with food are very noisy.

The flight of this bird is most rapid; it darts by like an instant gleam.

Locality.—Temminck states that Alcedo ipida occurs near the sea in the south than Europe, and in Holland, says that it is not widely spread. Mr. Selby says that it is generally distributed through Europe, and that our birds will in no respect differ from those of the same species in Asia or Africa, as he has had an opportunity of examining specimens from both. M. Temminck observes that the commonest of the three species of Kingfisher must not be confounded with our Alcedo ipida, though it differs but little from it. The common Kingfisher is a resident with us, as it is in Italy and other European countries. Mr. Selby says that the young in the British Islands appear to have the habits of partial migration, as they wander from the spring along the rivers to the coast, frequenting, in the summer and winter months, the mouths of small rivulets and dykes near the sea; but more particularly along the coast of the southern coast and the shores of adjacent inlets. There may be remarked, that in the 'Portraits d'Oyseaux' of Blyth, the following quatrains is printed under the name of the common Kingfisher:

"Le Martinet-pecheur fait sa demeure
En temps d'hyènes, au bord de l'océan:
Et de poissons se repaist toute heure.
Et de poissons se repaist toute heure."

It may be imagined that a bird of which so many marvellous stories have been told, under the idea of its being the son of the antients, whose so-called nest, the Halcyon, was supposed to be endowed with medical properties, could not entirely escape the attention of the superstitious Romans. Thus its dried body was said to preserve woolen garments from the moth, and if suspended by a thread from the ceiling of a room with doors and windows closed, to turn its head towards the quarter whence the wind blew.

Hrabas, in Marlowe's "Jew of Malta," says—

"But now how stands the wind? Into what corner peers my Halcyon's bill? Hat to the east? yes."

Kent ("King Lear"), when, in his answer to Cornwall, he is seeking such "slaves" as the "Steward," declares that

"Bring, bring, and turn their Halcyon heads
With every gale and every of your mists!"

Mr. Charlotte Smith states that she once or twice saw a small bird of this species hanging from the beam of a cot-tage room as a weather-vane to show the way of the wind. It was lastly been seen in a similar position at Botley near Southampton. In the same part of the country some common people fancy that if a dead kingfisher be suspended by the bill it will turn its breast according to the ebb and flow of the tide. The bird was also supposed to be a presage against thunder, to increase hidden treasure, to bestow love and beauty on the person who carried it, and to renew damage, dead as it was, every season by moultling.

With reference to the question as to what species was it by Aristotle, the reader should be aware that another kingfisher, Alcedo rudis of Linnaeus (? Swainson), is in the islands of the Grecian Archipelago, though Asia and Asia appear to be its more particular localities. This species is figured in Mr. Gould's beautiful work on the Birds of Europe.

I. epídes. Habit of Alcedo.—Culmen obtuse, somewhat flattened, and margined on each side by an indented groove. Tail lengthened, rounded. Inner too much longer than the hinder. Clinax either deeply notched, or cleft so as to present two acute unequal points. (Sw.)

Geographical Distribution.—Chiefly the New World. (Swainson.)

Mr. Swainson, who, in his 'Classification of Birds,' gives the habitat above stated, describes two species, I. giganta, and I. bidriecta, in his birds of Western Africa. He states, and with reason, that among the largest sized Kingfishers that have been imperfectly known and incorporated in our systems, there is the greatest confusion, not only as to the characters of the birds themselves, but likewise in regard to their native countries. We have therefore, knowing the accuracy of Mr. Swainson's pencil, copied his figures of Halcyon cinnamonina, I. giganta, and Alcyone Australia, (the latter from Mr. Swainson's figure in the Zoological Illustrations, with the aid of a specimen in the Museum of the Zoological Society of London), as the best, if not the only mode of conveying to the reader the forms that he would designate under the names of Halcyon, I. giganta, and Alcyone.

Description.—Above aconous, spotted with white; chin and cheeks white, immaculate; breast with a broad rufous collar; head above black, crested behind.

Locality, Senegal.
feathers longest. (Vigors.) Mr. Swainson gives India as the Locality.

Example, Tanysiptera Des; Alcedo Des, Linn., Ispida Ternatana, Briss.

Description.—Above intense black-azure, white beneath; head and wing-coverts cerulean; tail-feathers white margined with cerulean, the two middle ones cerulean, with their apices club-shaped and white. (Vigors.)

Tanysiptera Des.

Alcyone.—Bill as in Alcedo; but the feet with only three toes. Australia. (Swainson.)

Example, Alcyone Australis.

Description.—Body above, sides of the head and neck, shining mazarine blue; beneath rufous; chin and throat whitish; wings blackish; inner fore-toe wanting. (Swainson, Zool. Ill., Ist series, where it is figured and described as Alcedo azurea.)

Locality, New Holland.

Habits.—Lewin, who has figured this Kingfisher in his 'Birds of New Holland,' states that it inhabits heads of rivers, visiting dead trees, from the branches of which it darts on its prey in the water beneath, and is sometimes completely immersed by the velocity of its descent.

Lamprotila platyrhyncha.

Generic Character.—Plumage metallic. Bill very broad, dilated; the commissure and culmen curved; the upper margins folding over the lower. Nostrils membranaceous; the aperture round, protected by feathers. Wings as in Galbula, but longer; the third and fifth quills equal. (Sw.)

Example, Lamprotila platyrhyncha.

Galbula.

Generic Character.—Plumage metallic. Bill very broad, perfectly straight, greatly compressed; the culmen sharp, the tip not bent. Wings short. Tail lengthened, graduated. Toes in pairs, or with the Hallux wanting. Nostrils with a few strong bristles. (Sw.)

Habits.—Mr. Swainson remarks (Classification of Birds, vol. ii.) that the habits of the Jacamars and those of the puff-birds and hermit-birds are similar, although the flight of the latter is weaker. 'The Jaramara,' he says, generally sit on low naked branches in the forest, from whence they dart upon butterflies, spearing them wit.
the long hill: their haunts, indeed, may frequently be known by the ground being strewed with the beautiful down of their victims, the body of which they alone devour.'

Mr. Swinson further observes that in all the groups of this family previously noticed the bill is invariably compressed on the sides, and generally of considerable length; but in Galbulus grandis, between it and the species of the Trogoleidae we see a bill considerably broader and depressed; that character, in short, which is in unison with the next family, according to Mr. Swinson's arrangement, viz. the Trogoleidae.

Example, Galbulus paradisea: Sucklow-tailed King-fisher, Edw., Paradisoe Jacanne, Lath.

Description.—Size of a lar: colour golden green; throat, neck, and lesser wing-coverts white; head violaceous brown. Bill and feet, the latter of which are feathered to the toes, black; two intermediate tail-feathers longest.

Locality, Surinam.

KING'S COUNTY, an inland county of the province of Leinster, in Ireland, bounded on the north by the county of West Meath, on the east by the county of Kildare, on the south by Queen's County and the county of Tipperary, and on the west by the river Shannon, which separates it from the counties of Galway and Roscommon. From the boundary of Kildare, near Edenderry, on the east, to the Shannon on the west, the county is about 64 statute miles; and from the boundary of Tipperary, near Moneygall, on the south, to the boundary of West Meath, near Clara, on the north, 31 Irish or 39 statute miles. Area about 475,828 acres.

(Queen's County.) The British Association of the Society for the Diffusion of Useful Knowledge it contains 456,960 statute acres, or 714 square statute miles. The area has elsewhere been estimated at 328,166 statute acres, of which 394,569 are cultivated land, 133,549 are unprofitable, chiefly bog, and 246 are under water. The population in 1831 was 144,225.

The outline of the county is very irregular, extending east and west from Kildare to the Shannon, and then stretching south, from this point, first discarding the Liffey and then the Slieve Bloom Mountains. A series of low limestone hills, running in a north-easterly direction from the northern extremity of the Slieve Bloom range, by Geashil, divides the northern portion of the county into two districts of unequal area, of which the one discharges its waters eastward to the Barrow; and the other, which is of about double the extent of the former, westward into the Shannon.

This range of eminences terminates in the north-eastern part of the county, in the conical hill of Crogan, which rises 1,865 feet above the level of the sea, and is the most prominent object within a circuit of twenty miles in diameter. From the northern and eastern declivities of Crogan Hill the ground slopes towards the basin of the Boyne, one branch of which, the Boyne River, has its source in the small lake of Loch Rushkel, situated in a morass at the northern foot of the hills.

From Crogan and the Yellow River to the Boyne, which forms the north-eastern boundary of the county, separating it from the barony of Carbery in Kildare, is a tract of well-cultivated country, containing the flourishing market-town of Edenderry, an ancient seat of the Cooley or Cowley family, who settled here in the reign of Queen Elizabeth. A branch from the Grand Canal is carried to the town from this part of the country, by the first-discarded portion of the main line. The Marquis of Downshire is the proprietor, and has contributed liberally to the construction of the canal and to the erection of a handsome and commodious market-house. South from the line of the Grand Canal three districts included between the heights of Geashil and the county of Kildare is a great extent occupied by peat-bog, forming a portion of the great bog of Allen. This tract, extending about twelve miles every way, is divided into quadrants, by the three rivers which, running from north-west to south-east, discharge themselves, through the Faggule and Little Barrow rivers, into the Great Barrow, which last forms the southern boundary of the district. The Philipstown river, which rises in Philipstown, lying almost due east and west, which are generally arable for a distance of half a mile to a mile on each side of the stream, has its source on the eastern side of the bog of Ballycommon, a tract of peat-bog occupying the summit level of the central northern district of the county. The highest part of the bog is 286 feet above the level of the sea, and the waters issuing from its eastern and western banks run respectively into the Shannon and the Barrow. Between the Philipstown river and the Grand Canal are included the detached bogs of Clonerane, Eaker, and Down, covering, with the bog of Ballycommon, a total area of 9499 statute acres. South of the Philipstown and north of the Ballycommon, the districts adjoining the banks of the rivers Clonsaat, and Ballykeane, extend over 16,592 acres; and the bog of Portarlington covers a tract of 4916 acres between the Cushina and the Barrow. The highest elevation of the bogs on this side of Ballycommon is about 246 feet. The Barrow, by its junction with the single Finger River, where it receives their waters, is 185 feet above the level of the sea, so that their drainage could be effected with unusual facility. It is estimated that the entire bog on this side of the heights of Geashil, comprising an area of 33,858 acres, which includes some smaller tracts not specified above, could be drained at an expense of about 50,000l. Each of the rivers above mentioned has a margin of arable land varying from half a mile to two and three miles in breadth. The valley of the Barrow, which consists on the King's County side of such a margin interposed between it and the bog of Portarlington, is highly cultivated, and to a considerable extent occupied by the demesnes of the resident gentry. About midway between the point where it debouches into the county and the highway leading to the Little Barrow is Portarlington, a very well-built and comparatively inhabited town, partly situated on the northern bank of the Barrow, in this county, but chiefly in Queen's County.

In Queen's County, where this road has its line of the summit-level of which, nearly surrounded by the bog of Ballycommon, is Philipstown, formerly Dangin, a seat of the O'Connors, and, from 1557 to 1833, the shire town of the county. The transfer of the assizes to the new-town of Tullamore in the latter year has reduced Philipstown, which was never a place of much importance, to the condition of a village. It is situated on the summit-level of the Grand Canal, the surface-water of which is 254 feet above the level of the sea.

West from the range of Geashil the country slopes to the valley of the Brosna, which, flowing from Loch Ennill in West Meath, traverses the north-western portion of the county in a direct line from north of east to south of east; then flowing the Clodagh and Frankford rivers from the district between Geashil and the Shannon, flows into that river at Shannon Harbour. The line of the Grand Canal, which joins the Shannon at the same point, is nearly parallel to the course of the Brosna after its junction with the Clodagh. The latter river rises in Loch Annnagh, a pool of marsh water on the confines of Queen's County, and receives the drainage of about 4000 acres of bog lying between Geashil and Tullamore. Tullamore, the assize town of the county, is situated on the southern bank of the Grand Canal, on a stream running into the Clodagh. [TULLAMORE.] The demesne of Lord Charleville, comprising 1500 acres, extends from the western outskirts of the town to the junction of the Tullamore and Clodagh rivers, the latter of which forms several beautiful cascades in its descent through a wooded glen in the demesne. The mansion is in the baronial style, on a scale corresponding to the extent of the grounds, and is by much the finest residence in this county. On the hill, on the banks of Mount Lycet, is a considerable tract of wood, which, with the extensive plantations of Charleville Forest and the cultivated tract round Tullamore, forms a pleasing contrast to the boggy districts on each side. The bog on the west side of the town, and the Grand Canal, occupy an area of 11,568 acres. They are disposed in three principal tracts, separated from one another by low hills of limestone gravel, and bounded on the south by the hill of Cloughan, which separates the bogs immediately by being

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on the canal from one more extensive tract lying between its southern declivity and the range of Slieve Bloom. This latter is in the possession of five persons, who, with 3,298 acres, and by its drainage forms the chief supply of the Frankford or Silver river. This river has its source on the north-western declivity of Slieve Bloom, near the small town of Killiney, which, previous to the foritures of 1641, was a part of the birthright of the O'Carrol family, petty princes of Ely O'Carrol.

About five miles from Killiney, lower on the river, is the small town of Cloghan, a thriving market-town for grain, situated in the district, which is entirely possessed of the ruins of whose castle of Broghill are still standing in the neighbourhood. The Frankford river, passing under the Grand Canal at the Meartnay aqueduct, runs into the Brosna, about three miles below the junction of the latter river with the Clongagh, which also passes under the canal. The valley of the Brosna is the best cultivated portion of the north-western division of the county. The river winds between undulating banks, which form a margin of considerable breadth on either side free from bog, and towards West Meath is crossed by a well-cultivated open country about the town of Clara, which is situated on the river near the county bounds. Clara is well built, and, prior to the opening of the Grand Canal, was the chief manufacturing town of the district; and cotton manufacturing is now a principal branch of trade carried on in it. Below Clara, on the Brosna, are the villages of Ballycumber and the town of Ferbane, the latter very pleasingly situated on the wooded banks of the river near its junction with the Shannon. These two towns are almost midway between the borders of West Meath, with the exception of the arable margin of the river, is almost wholly occupied by bogs. These are of greatest extent towards the Shannon, covering an area of 17,650 acres. The banks of the river. The Blackwater stream drains this tract, and gives its name to the principal field of bog, which covers 12,165 acres. A margin of arable and borders the Shannon also, and elevated tracts of limestone gravel extend from it into the interior of this part of the county. Along the several banks of the bogs of this district, extending from the field drained by the Blackwater to the north of Clara, cover 11,055 acres. The most eastern of the four tracts comprised in this division is the bog called Kilmeany, now generally known as the 'moving bog,' which in the year 1821 burnt its bounds and flowed nearly a mile and a half down an adjoining valley.

The remaining portion of the county, included between the western declivities of the Slieve Bloom Mountains, Tipperary, and the Shannon, has a general slope towards the Liffey river on the side of Tipperary County and Tipperary. This division of the county, with the exception of that part immediately bordering on the Shannon, lies south of the boggy region, and is little en- cumbered with rough land or bogs. The portion which slopes immediately to the Shannon, north of the junction of the little Brosna with that river, is bleak and moory, comprising a considerable portion of the bogs lying south of Cloghan hill. These are drained by two streams running westward to the Shannon, the more considerable of which has its sources in Loch Caur, a small lake south of Cloghan. On the bank of the Shannon, between these streams, is situated the thriving town of Banagher, commanding an important pass into Connaught. The bridge which here crosses the Shannon is old and narrow, and it is proposed to erect a new one better fitted for so great a thoroughfare. There are fortifications at both ends of the bridge, commanding the approaches, and about a quarter of a mile further down, on the King's County side, there is a circular fort of six bastions. Banagher is well situated for trade, and has several thriving manufactories. The banks of the Shannon are here richly clothed with meadow, but liable to frequent floods. The valley of the Clongagh, formed by the Brosna from the Shannon to Birt [Birr], is a well-watered and fruitful district, and forms the county of Tipperary and Queen's county, is an undulating well inhabited district, containing extensive tracts of pasture, and towards the mountains abounding in timber. The small town of Shinnone and Moneygall are situated in this part of the country, the latter within a few miles of Roscrea, on the northern border of Tipperary. The highest elevation of the Slieve Bloom Mountains is 1860 feet. They extend in a line from north-east to south-west, through a distance of 15 miles along the Queen's County border of this county, lying pristinely in the large tract of level land, which, bounded by the Gap of Cahir, is the only part of communication throughout the line available for purposes of general traffic. It lies near the northern extremity of the range, on the road from Frankford to Meath. In Queen's county above the town of Cahir, the Will's Bit range forms the more southerly part of the boundary-line bordering on Tipperary. Through the interval between these ranges is carried the line of communication between Roscrea and Birr. These mountains are convex and rounded, and the outline, extending from a north-easterly point, to the north end of Loch Derg below Portumna Bridge, is a total distance of 39 miles. The navigation is partly by the river and partly by lateral cuts. There are three such, with locks on that part of the River Shannon bordering King's county, viz. at Meckie, Banagher, and Shannon Bridge. Five steam-boats employed by the Ireland Navigation Company in connection with the City of Dublin Steam Paking Company ply on this part of the river. The largest of the Shannon Navigation Company is at present the only one plying on the same part of the river in 1830 was 342, having a gross tonnage of 952 tons; and in 1835 was 467, having a gross tonnage of 15,482 tons. Various improvements have been recommended by the commissioners of the Shannon and Boyle Navigation Company, at the head of the Shannon, and are under the consideration of the Board of Trade. These contemplated improvements include new bridges at Shannon Bridge and Banagher, and a foot-bridge near Meckie. [Shannon.] The Little Brosna is navigable for small boats to a distance of about two miles from its junction, and it is proposed to make it navigable as far as Birr.

Climate.—Notwithstanding the great extent of wet ground on the surface of King's County, the climate is neither damp nor rigorous. The rainfall is partly accounted for by the atmospheric capacity of the pest-bog, and the remaining part falls on the county lying comparatively high and open. The Queen's County side of the Slieve Bloom range is however much more favourably situated for sun and shelter than that division of the chain which spreads into the south-western district of this county.

Geology.—The floetz limestone of the central plain spreads over the entire area of the county, with the exception of the portions occupied by the protruded masses of the Glacial rock among which the Glacial rock is abundant. There is a considerable expanse of bog, which, near Clonbrock, is situated in the district, in the south-western part of the county. This expanse consists of a protruded mass of fine slate, and contains masses of coal. The rocks are beneath the surface.

The ranging of the surrounding plain appears trenched vertically, and contains masses of cannon. These rocks are beneath the surface. The king's County side of the Slieve Bloom range is however much more favourably situated for sun and shelter than that division of the chain which spreads into the south-western district of this county.
The linen manufacture was carried on about the beginning of the present century with considerable activity in the north of the county, but latterly declined. There is a small manufacture of friezes, stuffs, and serges for home consumption. Distilling, brewing, and the grinding of corn are carried on at Birr and in other parts of the county, but not to any great extent. In 1831 there were 659 weavers, 13 tailors, and 18 fullers.

The condition of the working classes is somewhat better in the northern and central districts of King's County than in most of the neighbouring parts of Ireland. Wages vary from 6d. to 10d. per day, on an average of 160 working days each year. The cabins of the labouring peasantry are generally of a very bad description, particularly in the boggy districts. There is however a good number of comfortable farmers, and the people generally are of industrious and honest habits. The English language is spoken universally.

King's County is divided into the baronies of Warrenstown, on the north-east; Cootestown, on the east, containing the town of Enfield (population in 1831, 1283); Philipstown, Lower, on the north, containing the town of Philipstown (population, 1454); Philipstown, Upper, containing part of the town of Portarlington (total population, 726); Geashill, in the centre; Kilcoursey, on the north-west, containing the town of Clara (population, 1149); Ballyboy, west of Geashill, containing the town of Kingspanna (population, 6342); Ballyboy, south of Ballyboy, containing the town of Frankford (population, 373); Garrycastle, on the west, containing the towns of Banagher (population, 2635), Shannonbridge (population, 569), and Feereban (population 501); Banagher, north of Garrycastle; Ballybrit, south of Edenderry, containing the towns of Birr or Parsonstown (population, 6594) and Crinkle (population, 331); and Clonlusk, on the south-west, containing the town of Shinnor (population, 1287) and the village of Moneygall (population, 379).

Philipstown was incorporated as a borough by charter of the 12th Elizabeth, but the corporation is now extinct; Banagher also, incorporated as a borough by charter of the 12th Charles I. has lost its municipal body: and these are the only towns in the county which have at any time had corporations.

Prior to the Union, King's County was represented in the Irish parliament by two county members, and two for each of the above boroughs. The representation of the Imperial Parliament is now limited to two county members. The constituency in 1836 consisted of 1694 voters.

The assizes are held at Tullamore. General quarter sessions are held at Tullamore, Birr, and Philipstown, in each of which is a court-house and gaol, that at Tullamore being the county-gaol and the others bridlewells. On the 1st January, 1836, the police force of this county consisted of 5 chief constables, 45 sub-constables, 225 sub-constables, and 6 corporals, supported at a cost, for the year 1835, of 9246l. 3s. 8d., of which 4838l. 5s. 11d. was chargeable against the county. The total number of criminal offenders committed to the county-gaol in the year 1836 was 672 males and 94 females, of whom 254 males and 13 females could read and write at the time of their committal; 272 males and 38 females could read only, and 146 males and 43 females could neither read nor write.

The district lunatic asylum for King's County is at Maryborough in Queen's County. There is a county infirmary at Tullamore, fever hospitals at Shinrone and Birr, and dispensaries in all the chief towns and villages. There are barracks at Banagher, Birr, Shannon-harbour, Tullamore, and Philipstown.

### Population Table

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1792</td>
<td>Estimated by Dr. Beaufort</td>
<td>13,536</td>
<td>15,396</td>
<td>28,932</td>
</tr>
<tr>
<td>1813</td>
<td>Under Act of 1812</td>
<td>19,705</td>
<td>21,833</td>
<td>41,538</td>
</tr>
<tr>
<td>1821</td>
<td>Under Act 5 Geo. III. c. 120</td>
<td>22,564</td>
<td>23,278</td>
<td>45,842</td>
</tr>
<tr>
<td>1831</td>
<td>Under Act 1 Will. IV., c. 19</td>
<td>24,256</td>
<td>26,075</td>
<td>50,331</td>
</tr>
</tbody>
</table>

Note: The population figures are rounded to the nearest 1000.

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**Population Table**

<table>
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Note: The population figures are rounded to the nearest 1000.
History and Antiquities.—Although not reduced to shire-ground as one county until the time of Mary, King's County was partially included in other shires at a very early period. It appears from sundry Pipe Rolls of the reign of Edward II. that the portion which at present belongs to King's County was in the hands of the chief and barons of the shire of Meath, and as such was charged with royal service. The manor of Geashil, now forming the central district of the county, was, in the reign of Edward II., in like manner attached to a part of Kildare, being an ancient inheritance of the FitzGerald family, a part of which—Geashil—now lies within the bounds of King's County, was included in Kildare from the first division of Leinster into counties. But the western and south-western portions of the county, including the town of Mullingar [Boa], was formerly under the grand jury of Bohernaghlan's Court, as was stated to have formed part of Offaly, and consequently to have been included in the first limits of the county of Kildare, do not appear to have been reduced for practical purposes to the authority of English law until the year 1557, when the act was passed which erected the whole into one county under its present name. Before that period it was generally designated Western Glennamore, to distinguish it from Eastern Glennamore, the present Queen's County. [Queen's Co. Conn.] The fort of Davogin, an old seat of the O'Connors, the chief family of Offaly, was at the same time made the shire town, and called Philips-town, in compliment to the king consort. The native chieftains for a length of time struggled against the new settlement. In 1600, when the Earl Deputy [Barrow], having joined his forces with those of Sir Oliver Lambert, succeeded, after a deplorable destruction of life and property, in finally reducing them. An account of the military operations of which this county was the theatre, during the rebellion, and the order of troops and the emigration, is given in the heads of the chief towns. [Birr ; Tullamore.] The forerunners consequent on that rebellion and on the subsequent war of the Revolution were very extensive. On the latter occasion the number of acres of profitable land confiscated was 30,450, of a total value at that time of 89,321L. 14s. The families of Coghan, Geoghegan, Carrol, and Grace were the most considerable among those attainted. The ruins of the seven churches of Clonmacnoise, situated on the bank of the Shannon, in the north-western part of this county, form one of the most interesting groups of ecclesiastical remains to be met with in the island. The buildings are of various dates, from, probably, the seventh century to the twelfth. St. Kieran of Clonard founded the abbey A.D. 548. It was subsequently, but at an uncertain date, raised to the rank of a cathedral church, and so continued till A.D. 1668, when the see of Clonmacnoise was united to that of Meath. Surrounding the abbey is the ancient burial ground, and containing the two Irish kings and occupied with the sites and ruins of various religious houses. The whole is enclosed with a wall, at two of the angles of which are ancient round towers, said to have been erected by O'Rourke and MacCarthy respectively. The buildings within consist of chapels, arcades, and over family burying-places by the various Irish kings and chieftains, who, 'although at perpetual war in their lives, were contented to lie here peaceably in death.' They are—Temple-Riagh, built by O'Melaghlin, King of Meath; Temple-Connor, built by O'Connor Dunn; Temple-MacDermot, founded by MacDermot, prince of Coolavin; and two others, founded by O'Kelly and MacCarthy More. The place was for many centuries the Iona of Ireland, and still continues to exhibit more numerous remains of ancient monuments than any other cemetery in the country. Two monumental crosses, richly carved, stand near the western door of the Temple-MacDermot. One of these, fifteen feet in height, is formed of a single stone. There are the remains of several other religious houses in the immediate vicinity. The entire group occupies a gently swelling bank, rising from the Shannon about midway between Shannon Harbour and Athlone. The place is shut in on the north and continues to exhibit a vast extent of bog, peculiarly picturesque appearance. Twenty-eight other religious houses are enumerated in this county, of which the chief were—Birr; Durrow, founded A.D. 550; Gallen on the Bruma, in the eleventh century; Monasteroora, near Edenderry, founded by John de Courcy, in the year 1232; and Seirkeran, near Birr, founded A.D. 402, by St. Kieran the Elder, and for some time a cathedral church. There are numerous remains of sundial castles, chiefly of the Elizabethan era. Leap Castle, situated on a declivity of Slieve Bloom, in a strong and commanding position, is still inhabited; so also are Cloghan Castle and the castle of Birr. There are no very remarkable ruins of monastic or feudal castles. The county presents, however, a considerable number of remains of ironsides or castles. The county expenses are defrayed by grand-jury presents. The sum levied in the year 1835 was 21,060L. 19s. 6d., of which 4739L. 14s. 4d. was for public works, roads, &c.; 11,179L. 15s. 6d. was for public buildings, and 535L. 14s. 6d. for police and the administration of justice. King's County embraces a portion of each of the four archiepiscopal provinces, extending into the dioceses of Meath, Armagh, Ross, and Cashel; a part of Louth, in which the educational statistics of the county are included. (Statistical Survey of King's County, Dublin, 1861; Transactions of the Geological Society, vol. v.; Brewer's Beauties of Ireland; Parliamentary Reports and Papers.)

KING'S EVIL. [Scrofula.]

KING'S LYNN. [Lynn.]

KING'S YELLOW, the name given to orpiment, or the yellow sulphuret of arsenic, when used as a pigment. [Arsenic.]

KING'S, THE BOOKS OF, the name of two books of the Old Testament. They originally formed only one book in the Hebrew text, and are entitled יִד, that is, 'Kings.' In the Septuagint they are divided into two books, and are known by the titles of 1 Kings (παλατιονἐνατον) and 2 Kings (παλατιονδιοικητον). From the first and second books of Samuel are called in this translation the first and second books of Kings. They contain an account of Jewish history from the death of David to that of Solomon (1 Kings, i.-xi.); an account of the division of the kingdom under his successors Rehoboam, and the history of the two kingdoms of Judah and Israel, to the conquest of the former by the Assyrians under Sargon (2 Kings, xii.), and the separate history of the tribes of Judah and Benjamin, till they were carried away captive to Babylon by Nebuchadnezzar in the reign of Jehoiachin. (2 Kings, xviii.-xxv.)

These books, in common with the books of Chronicles, are many others of the Old Testament, are generally ascribed to Ezra; but neither the author nor the time in which they were written can be determined with any degree of certainty. It is evident from many passages, and especially from the last chapter of these books, that a portion of them must have been written in the time of the Babylonian captivity; but there are also other passages which must have been written before the destruction of the kingdom of Israel, and while the temple at Jerusalem was still standing. (2 Kings, xiv. 23-31; xvi. 13, 15; xxi. 16; xxii. 2; xxiii. 14.) It is therefore probable that these books are only a collection of different documents written by persons present at the events narrated, and that the compiler only wrote such portions as were necessary to connect the different documents, and to form one continuous narrative.

There are many great discrepancies between these books and the books of Chronicles, which are mentioned and discussed in the article Chronicles. (The Introductions of Eichhorn, Jahn, De Wette, Barthold, Augusti, and Horne; Rosenmuller's Scholia.)

KINGSCLEERE, a village in Hampshire, remarkable for the exhibition of the green sand formation in the midst of the elevated chalk down, on the line of an anticlinal axis passing east and west. The anticlinal axis passes through the middle of a valley (hence called a 'valley of elevation') in which the green sand appears; and it might seem on first view that the discontinuity of the chalk was amply sufficient to account for the absence of the strata, and slopes of the strata, in plans and sections on a true scale. It will immediately appear that a considerable mass of chalk must have been removed by denudation. For the knowledge of the most interesting valley is indebted to Dr. Buckland. (Geo. Trans., 2nd series, vol. i.) Mr. Lyell has contemplated it in connection with the more extensive denudation of the Weald of Kent and Sussex. (Pha. Soc. Trans., 1849, p. 400; Geo. Ind. vol. iv., ch. xxii.)

KINGSTON, [Jamaica.]

KINGSTON-ON-HULL. [Hull.]
KIN

KINGSTON-ON-THAMES. [Surry.] KINIC ACID, a peculiar vegetable acid, sometimes called cinchonic acid, which was discovered in 1790 by Hoffman in cinchona bark, in which it exists in combination with the vegetable alkaloids cinchonine and quina, and also with lime, forming the cinchones of these bases. When an infusion of bark is evaporated till an extract is left, and that is treated with alcohol, a viscous substance remains, containing cinchonine and quine; by evaporation in a warm atmosphere this is deposited in crystals.

Kinic acid has a very sour, but when pure not a bitter taste; it reddens litmus paper strongly; is unsaltable in the cold, when dissolved in 24 times its weight of water at 40°, and is also soluble in alcohol. When heated, in a retort it readily boils, until, decomposes, blackens, and yields an empyreumatic oil, with pungent vapours of pyrokinic acid, one portion of which condenses into a liquid, and another crystallizes. Sulphuric acid renders cinchonic acid first green, and then carbonizes it; by the addition of a small portion of nitric acid it is converted into an acid resembling the pyrokinic acid, which may be subdued; but a large quantity of nitric acid changes it into oxalic acid.

According to the analysis of Liebig anhydrous kic acid consists of—

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nine equivalents of hydrogen</td>
<td>9 or 5:26</td>
</tr>
<tr>
<td>Fifteen carbon</td>
<td>52:63</td>
</tr>
<tr>
<td>Nine oxygen</td>
<td>42:11</td>
</tr>
</tbody>
</table>

Equivalent 171 100°

The crystals contain one equivalent of water.

The natural cinchona, except that of lime already described, are only obtained by complicated processes from the bark; but by artificial means they are readily procured, either by saturating the acid with the bases, or by the double decomposition of cinchonine and the bases of such bases as base soluble without salts. They shall describe only a few cinchones, and chiefly those which exist in the cinchona, and first we shall notice the most important of them, the

Kinic of Quina.—The natural cinchones crystallize with difficulty, on account of the admixture of yellow colouring and other matters, and these have prevented the determination of its crystalline form. This salt is very bitter, readily soluble in water, and but slightly in alcohol of sp. gr. 0.837. It is decomposed by heat, or sulphuric acid; the solution is reduced to a viscid paste, which when moistened and exposed to the air exhibits ruddiments of crystallization. It is, like other salts of quina, decomposed by the alkalies ammonia, potash, and soda, which precipitate the quina. Kinic of quina may be prepared artificially by dissolving quina recently precipitated from the sulphate in a solution of cinchonic acid, with a gentle heat. By exposure to the air the liquid becomes a mammellated mass, containing small brillant rhombic crystals of cinchona of quina.

This salt is a dikinite, composed of—

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>One equivalent of cinchonic acid</td>
<td>171</td>
</tr>
<tr>
<td>Two equivalents of quina</td>
<td>324</td>
</tr>
</tbody>
</table>

Equivalent 495

Kinicate of Cinchona.—The natural compound very much resembles that of quina; the artificial salt yields crystals by exposure to the air, which are like, but are more distinct than those of the cinchone of quina obtained in the same way. This salt is bitter, and very soluble in water, slightly in alcohol of sp. gr. 0.837.

This is a dikinite also, consisting of—

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>One equivalent of cinchonic acid</td>
<td>171</td>
</tr>
<tr>
<td>Two equivalents of cinchones</td>
<td>304</td>
</tr>
</tbody>
</table>

Equivalent 475

Kinicate of Lime.—This salt crystallizes in rhomboids and hexagonal plates; but it is not only preferable by 24°, and much more so in boiling water. It is insoluble in water. It is decomposed by oxide of lime and sulphuric acid, and also by the alkaline carbonates. According to Berzelius, a small quantity of cinchonine of lime may be obtained from the albumen of the fir-tree.

This salt is composed of—

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>One equivalent of cinchonic acid</td>
<td>171</td>
</tr>
<tr>
<td>One equivalent of lime</td>
<td>28</td>
</tr>
<tr>
<td>Ten equivalents of water</td>
<td>90</td>
</tr>
</tbody>
</table>

Equivalent 289

The properties of the artificial cinchones are thus, with slight alterations, given by Berzelius. Kinicate of potash, bitter and deliquescent, has cinchonine, crystals in hexahedral prisms; it appears to contain no water of crystallization, and does not alter by exposure to the air. Kinicate of ammonium, deliquescent. By evaporation a portion of its acid is set free. Kinicate of barytes crystallizes in dodecahedral crystals with triangular faces; becomes opaque by exposure to the air; is very soluble in water, but slightly in alcohol of 0.930. Kinicate of magnesia, very soluble, and forms crystaline excescences similar to cauliflowers. Kininate of manganese crystals in rose-colored lamellae crystals. Kininate of zinc crystallizes in laminae, or in cauliflower-like aggregations. Kininate of nickel, a green gummy mass, very soluble in water. Perkiniate of iron, a reddish-yellow gummy mass, soluble in water. Kinate of lead crystallizes in slender needles; does not alter by exposure to the air, and are soluble in alcohol. Subkininate of lead, a white powder insoluble in water. Kinate of copper crystallizes in green needles, or rhombic lamina; the surface becomes black by exposure to the air. Perkiniate of mercury, a colourless salt which does not crystallize. Kinate of either forms mammellated crystals, which readily blacken in the light.

KINCAIJOU. [Pororo.] KINCAIJOU, an astrigning substance, the concrete juice of one or more plants. Nothing certain is known respecting the plants which produce the black kino, and several very inferior sorts of commerce, the origin of which is likewise far from being ascertained. They are generally stated to be the best African kino, or obtained from a tree, native of Gambia, called Pterocarpus erinaceus (Linn.), P. Senega-ensis (Hooker). Both are certainly uninfluenced by exposure to the air. Perkiniate of copper, a green gummy mass, very soluble in water, in alcohol, or rhombic lamina; the surface becomes black by exposure to the air. Kinate of manganese crystals in green needles, or rhombic lamina, which are readily reduced by exposure to the air. Subkininate of copper, a white powder insoluble in water. Kinate of copper, a colourless salt which does not crystallize. Kinate of either forms mammellated crystals, which readily blacken in the light.

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In a paper lately read before the Royal Asiatic Society, Dr. Royle has adduced satisfactory evidence to prove that some of the commerce is no doubt supplied by Butea frondosa, which is common as a tree or shrub in every part of India. On comparing together specimens of the astrigent gum of this plant, contained in his collection, with some brought from North-western India by Mr. Beckett, and both these resinous gums sent from Bombay as the Kino of the Butea frondosa, they were all three found to be identically the same kind of gum; but Mr. Beckett's, from being the freshest specimen, was the most distinctly coloured. These were all uniformly similar, especially the specimens from Bombay, with some astrigent gum found by Mr. Pereira in one of the old druggists' shops of this city, under the name of Gunmi.
rubrum astringens, which was the name by which Kino was known. It was introduced into practice by Dr. Fothergill as Gummi astringens Gamberus, and has been adopted as the basis of a number of patent medicines for the relief of the symptoms of dysentery and cholera, and to some extent of such other complaints as are due to the action of the microorganisms that inhabit the gut. The plant yields it to be Pterocarpus erinaceus. It is remarkable that the Sanscrit name of Butea frondosa is kinsuka. From its gum being labelled by a drug-gatherer, astringent, the plant must have been among the earliest substitutes for the African kind, of which so little has ever been imported into this country. Analyzed by Mr. E. Solly, jun., the Butea kino was found to contain between 60 and 70 per cent. of tannin with gum. It is probable that Dr. Roxburgh remarked of the gum of the Butea frondosa, that it is so like that of his Pterocarpus marmopium that one description might suffice for both, with respect as well to appearance as to the action of the chemical constituents.

KINOSTERNON. [Toptin.] KINROSS, the capital of the county, is situated on the western bank of Loch Leven, in 56° 15' N. lat. and 3° 10' W. long., and is distant 19 miles north-west from Edinburgh.

The lower part of the town has a mean appearance, but as it rises to the north it has a cheerful look, and many handsome houses are built there, together with two excellent inns, equally remarkable for good accommodation and good food. The town church is new, and kept in good repair, is in the presbytery of Dunfermline and synod of Fife. There are four annual fairs, which are much frequented for the sale of horses and cattle. The trade of the town consists in the weaving of coarse linen and cotton, although it was once famed for the manufacture of cutlery. The school is said to be well conducted. The master receives an annual salary of 300 marks, with the use of a house and adjoining land. The population of the town and parish of Kinross in 1831 was 2917.

KINROSS-SHIRE, a small inland county of Scotland, bounded on the east and south by Fife, and on the west by Perthshire. The county consists of a forest, between 8° and 56° 17' N. lat., and between 3° 18' and 3° 35' W. Long. Its greatest length from Fossaway Church on the west to Auchmore Bridge on the east is 11 miles, and its greatest width from Damhead on the north to Kelt Bridge on the south, is 10 miles. The area of the county is 79 square miles, or 50,560 acres, of which 4149 are lakes. Its western boundary is in the Cleish and Ochil hills; the northern boundary is in the Ochil and Lomond hills; and the eastern boundary runs partly along the summit of the hill of Beaufort, and partly through the southern part of the parish of Kelt Burn, a little below Blair-Adam bridge, which stream, deriving its source in the Cleish hills, forms the southern boundary.

The boundaries of the county are chiefly hilly, but there is a level opening from the south at Kelt Bridge, and at Blair-Adam bridge an opening to the south-east, through which the great north road passes. There is a similar level opening to the west towards Stirling, at the Crook of Devon; and a third level to the north-east between the Ochil and Lomond hills, leading towards Cnap in Fife. There is, in addition to these valleys, a narrow passage on the east, through which the river Leven flows from Loch Leven.

The borders of the county are hilly, but the interior, comprising about one-half of the whole, may be regarded as a plain slightly varied by gentle undulations. The soil is various, chiefly inclining to gravel. To the north and west of Loch Leven it is clayey, sandy, and tolerably fertile, and, according to Sinclair, produces early and rich crops, but in the more elevated parts it consists of moor and moor, though even here it forms excellent pastures. The climate, though cold and wet, owing to the general elevation of the land, has been wonderfully improved by the extensive system of drainage. Upon the whole the air is considered healthy, and the people are vigorous, and subject to few distempers. The frost sets in sooner and continues longer than in the adjacent country to the south, but notwithstanding these disadvantages agriculture has been at all times pursued and improved. The first cropping of the seed-time and harvest are seldom behind those of the adjoining districts. Enclosures of hedges and stone walls are greatly upon the increase, and it is said that the enclosed lands may usually be let from year to year for pasture at a rent equal to that for tillage upon a lease of nineteen years. The average rent of land in 1810 was 9s. 10d. per acre, and has no doubt increased considerably since that time, as the farms are mostly occupied by resident owners or tenants who are equally desirous that the principal crop should thrive. They were begun in 1733, and at the present time cover upwards of 1300 acres, consisting of the oak, ash, larch, elm, and beech. The Scotch fir does not grow well in exposed situations, but the spruce and silver fir grow vigorously in some parts of the county.

There is some coal on the south, where the county joins the borders of Fifeshire. There are freestone quarries of good quality in that quarter, and to the north of Kinross red freemasons is the geological formation of the district. The high hills are whinstone or grits.

This county contains several fresh-water lakes, some of which are well stocked with pike, and the rest with perch, eel, and other fish. Of these lakes the principal is Loch Leven, which, although inferior in magnificence and picturesque beauty to Loch Lomond, is still a noble piece of water, covering a surface of near 3300 acres. Its height above the level of the sea is about 300 feet. Its greatest depth is from 80 to 90 feet. It contains four islands, the largest of which is called the Eilean, which is rich in fish, particularly trout, pikes, perch, and eels. The trout of Loch Leven are considered a great delicacy, and are regularly sent to the Edinburgh market. The quantity of fish caught in the lake and river, and drawn out by evaporation, is subject to great variation; and the surface of the lake is in consequence elevated and depressed to the extent of two feet and a half. The level of this lake has been lately reduced by a channel made for that purpose, but the undertaking is said to have hitherto proved unprofitable.

Upon a small island at the north-west end of Loch Leven are the ruins of the castle of Loch Leven, a fortress of great antiquity, which was once the property of the Doug districts to Kinross, and is said to have been granted by Queen Mary was confined, and from which she made her escape in 1568. The antient monastery of Portmooch, on the north side of the Leven, near the lake, is said to have been built by a Pictish king, and to have been the first place in Scotland given to the Cæsars after the conversion of the Picts to Christianity. On the Inch in Loch Leven, antiently called St. Ser's Isle, are the remains of an old priory built by Aelais, king of the Scots, in honorem et gloriam Christi et Virginis.

The chief streams are the Garny, and South and North Quiche. The first rises among the Cleish Hills; the two latter have their source among the Ochil Mountains, and all three fall into Loch Leven. The waters which flow from Kinnessvoor moss into the river Leven, about 14 miles, passing through a part of Fifeshire, falls into the Forth at Largo Bay. This river gives motion to about fifty mills.

The county is well-provided with roads, which are kept in good repair, and is intersected from south to north by the great north road, for which the country is indebted to the exertions of the venerable Chief Commissioner Adam, of the Jury Court. There is one large distillery, and cotton is woven at Kinross and Milnathurt, chiefly for the Glasgow market.

The population of the county in 1831 was 9072. A considerable increase has taken place in the population of the rural parishes during the preceding ten years, which is attributed to the much that has been employed during that period in ditching and bringing the waste lands into cultivation. The annual value of real property in 1815 was 25,805L. Kinross-shire unites with the county of Clackmannan and certain parishes in the southern part of Perthshire in returning one member to parliament.

(Rev. David Ure's View of the Agriculture of Kinross-shire; MacCulloch's Statistical Account of the British Dominions in Europe, &c.)

KINSALE, a sea-port town in the county of Kinsale and county of Cork, on the south coast of Ireland, situated on the river Bandon, about four miles from the sea, and about 176 English miles from Dublin. The borough and liberties constitute a barony. The river forms a safe and
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commodious harbour for vessels of considerable burthen, which can come close up to the town, in which respect it has an advantage over the city of Cork, from which it is distant.owing to the meanders of the river, the harbour is completely land-locked, and the town is defended by Fort Charles, which stands opposite to it, and about a mile down the river. The town is composed of one principal street by the river side, and several narrow streets running the length of the town. It has some blocks of buildings at the head of the harbour. At the census of 1831 there were 967 houses, inhabited by 1512 families, comprising 7512 individuals, of whom 3148 were males and 4164 were females. The population of the county was 13,957. Of the males 20 years old and upwards, 1562 in number, 22 were engaged in agricultural pursuits, 547 were employed in retail trade or handicraft, 133 were capitalists, bankers, professional and otherwise educated men; 638 were labourers employed in labour not agricultural; and 72 were male servants. The occupations of the remaining 88 are not given. There were besides 37 male servants under 20 years of age, and 413 female servants.

Kinsale (in Irish ceann-taill, or 'the head of the sea') early became a place of importance to the English settlers. John de Courcy, inheriting the surrounding tracts of country by intermarriage with the family of Cogan, built a castle on the promontory called the Old Head of Kinsale, at the mouth of the estuary river, in the 9th century. This probably led to the commencement of a town further up the river, where a land-locked and capacious creek afforded the advantages of a secure roadstead for ships of war. During the incorporation of the town, a grant was made to the inhabitants a.d. 1333, and various grants of customs, fees, &c., are subsequently on record. The place has been the scene of numerous engagements, both by sea and land. Here the Courcy defeated MacCarthy More with great slaughter of the Irish. In 1588 a battle was fought in the harbour between the English fleet and the combined fleets of France and Spain, in which the latter were signally

discomfited. On the 23rd September, 1661, a body of Spaniards, under the command of Juan D'Aquilla, landed here, and seized the town for the Roman Catholics. The men were then in arms under the Earl of Tyrone and other Irish chieftains. On the 17th October the English, under the Lord Deputy Montjoy and Sir George Carew, the president of Munster, arrived before the town, and invested it on both sides of the Banlon. The siege lasted till the 28th December, when the Spaniards surrendered in consequence of the defeat of the united armies of O'Neill and O'Donnell before the town on the preceding 23rd. This decisive defeat was attended with the loss of 800 wounded, completely broke the spirit of the insurgents, and led the way to the immediate pacification of Munster. During the wars of 1641 the town was a place of refuge for the Irish Protestants in the neighbouring country. It fell into the hands of the Jacobites during the terrible war of the Revolution, and was held by a combined French and Irish garrison for James II. from March, 1689, to the latter end of the following year, when it was taken possession of by the Protestant army under Brigadier-General Churchill, afterwards duke of Marlborough.

The governing charters bear date 7th January, 7th Edward III and 10th May, 31st Elizabeth. The corporation is governed by a council, consisting of sovereign, burgesses, and commoners, with the mayor, and the freemen. The freedom is obtained by grant of the council. The criminal jurisdiction extends to all offences, treason excepted: the civil jurisdiction of the recorder's court of pleas is unlimited in all personal actions. The annual revenue averages 560l, and the average expenditure 360l.

During the late continental war there was a government dockyard at Kinsale, in which ships of war were repaired and common upon which the flag was raised, as the king's ships as a place of refuge. This occasioned a considerable expenditure of money, which having ceased at the peace, the town is now in a declining and impoverished condition. Of all the houses which it contained in 1831, the number was only 301 which were rated as being worth 10l. per annum and upwards, and only 402 having more than six windows each. It is observed that many of the houses have balconies in the Spanish style. The town is pretty well paved, and has a good supply of water. A large portion of the population obtain a livelihood by fishing, in which they are very expert. The boats employed in the fishery are called Aoasters; they are well-built vessels of 20 tons burthen, and go to sea in all weathers. The men are often serviceable as pilots to strange vessels that are driven on the coast. The greater part of the fish which they take is sold in the markets of Cork. In a return of the commerce and mercantile value of the exports and imports of the several ports of Ireland in the year 1833, as given in the Appendix to the Second Report of the Commissioners appointed to consider and recommend a general system of Railways for Ireland, the trade of Kinsale, including its coasting trade, is stated to be as follows:

Imports.

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coals, culm, and cinders</td>
<td>13,500 Tons</td>
</tr>
<tr>
<td>Iron</td>
<td>161</td>
</tr>
<tr>
<td>Corn, meal, and flour</td>
<td>6,615 Cwt.</td>
</tr>
<tr>
<td>Salt</td>
<td>11,800 Bushels</td>
</tr>
<tr>
<td>Other articles</td>
<td></td>
</tr>
</tbody>
</table>

Total Value of Imports | £18,262 |

Exports.

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn, meal, and flour</td>
<td>18,012 Cwt.</td>
</tr>
<tr>
<td>Iron</td>
<td>100</td>
</tr>
<tr>
<td>Feathers</td>
<td>10</td>
</tr>
<tr>
<td>Cows and oxen</td>
<td>70</td>
</tr>
<tr>
<td>Horses</td>
<td>16</td>
</tr>
<tr>
<td>Sheep</td>
<td>8,000</td>
</tr>
<tr>
<td>Swine</td>
<td>1,071</td>
</tr>
</tbody>
</table>

Total Value of Exports | £13,479 |

The fish, which, as already mentioned, are taken by the Kinsale fishermen to Cork, are not included in this statement, being taken direct to the market of consumption without being landed at Kinsale.

The borough of Kinsale returns one member to parliament. The number of persons qualified to vote in 1835 was 221, and the number who voted was 155. At the registration of 1836 the number of qualified electors was increased to 270, and the actual voters at the last general election in 1837 were 199.

(Kinsey's Statistical and Political Account of Ireland; Smith's History of the County of Cork; Report of Railway Commissioners: Reports of Commissioners for the Extension of Public Works in Ireland.)

KINTYRE, or CANTIRE. [ARGYLLSHIRE]

KINNYXIS. [TORTOISES]

KIOOSIOO. [JAPAN.]

KIPPIES, ANDREW, D.D., F.R.S., born 1725, died 1790, a Nonconformist divine, held in great estimation both as one of the members of his own communion and generally in the world of literature and science. He was descended of ministers who had left the church in 1662, on the passing of the Act of Uniformity, and was educated in one of those academies which the dissenters established for the education of their ministers in university learning. This academy was at Northampton; and in the time of Dr. Kippis there was at the head of it a very pious and learned tutor, Dr. Dodridge. After a few years' prospects in the exercise of his ministry at Boston in Lincolnshire, and at Dorking in Surrey, he settled in London, in 1733, as pastor of a congregation of Presbyterian dissenters in Westminster, of which Dr. Edmund Calamy, a name of note among the dissenters, had formerly been the minister. Dr. Kippis continued connected with this society till his death.

The duties arising out of this connection did not preclude him from seeking other means of public usefulness. In 1763 he became a tutor in an academy for the education of dissenting ministers in London, on a plan similar to that on which the academy at Northampton had been conducted. In 1771 he was elected a Fellow of the Society of Antiquaries, and in the next year a Fellow of the Royal Society.

Dr. Kippis was a principal contributor to the 'Monthly Review' at a time when it was considered as the leading periodical work of the day. He had also much to do with
the conduct of 'The New Annual Register.' There are several pamphlets of his on the climates of the dissenter and on other topics of temporary interest. But the work with which he most honours himself is the publication of the 'Biographia Britannica,' with a large addition of new lives, and a more extended account of many persons whose lives are in the former edition of that work. The design was too vast to be accomplished by any one person, but the large folio volumes were printed of the work, and yet it had proceeded no farther than to the name of Ptolemy. Part of a sixth volume, it is understood, was printed, but it has not been given to the world.

Many of the new lives were written by Dr. Kippis himself, and particularly that of Captain Cook, which was printed in a separate form also.

Dr. Kippis's was a literary life of great industry. He was the editor of the collected edition of the works of Dr. Nathaniel Lardner, a minister of the denomination of dissenters to which he himself belonged, to which he prefixed a Life of that eminent theological scholar. He published also the ethical and theological lectures of his tutor Dr. Doddridge, with a large collection of references to authors on the various topics to which they relate, in two octavo volumes. A volume of his sermons was also published.

Dr. Kippis, like his friend Dr. Lardner, belonged to the Unitarian school of divines. He was through life distinguished by the amiety of his disposition, his active and business-like habits, his benevolence, and his piety.

KIRCHER, ATHANASIUS, born at Geyseren, near Fulda, in the Diocese of Fulda, 1602; died at an early age. He entered an order of Jesuits, made great progress in various branches of learning, especially in the study of Hebrew and other Eastern languages, and was made professor of philosophy and Oriental languages in the college of Würzburg. He afterwards went to Avignon, where he became acquainted with the learned Peiresc, and he there applied himself to the study of antiquities. From Avignon he went to Rome, visited Naples, Sicily, and Malta, and on his return was made professor of mathematics in the University of Rome, and one of the readers at the college of Romers. He filled this chair for eight years, and resigned it in order to devote himself entirely to his favourite studies. He collected a valuable museum of antiquities, which he left to the Roman college, and which has been repeatedly illustrated. (See, Romani Collegii Societatis Jesu Museum Athanasi Kircheri novis et rarioribus inspectione locupletatum, fol., Amsterdam, 1678, with a complete list of all the works of Kircher, published and republished; Bonanni, Museum Kircherianum, Rome, 1709, with Kircher's Battara, Rome, 1775; Contucci, Musaei Kircherianae Eruditi, 2 vols. fol., Rome, 1763-65.) Kircher was liberally assisted by several princes and noblemen, German, Italian, and Spanish. He died at Rome, in November, 1680, at the age of eighty-three, a man of extensive and varied studies, and a very copious writer; but his judgment was defective; he wanted critical, and jumped too hastily at conclusions, fancying that he could resolve any question. He was also very credulous, as his works amply testify. He wrote on mathematical and physical sciences; on philology and hieroglyphics, and also upon history and antiquities. His principal works are: 1. 'Magnes, seu de Arte Magnetica,' libri ii.; 2. 'Prima Institutione Catoptrorum, sive Physiognomoniae Mathematica,' 3. 'Arbor Magna Lucae et Umbrae,' 4. Prodomus Coptus; 5. 'Institutiones Grammaticae et Lexicam Copticam.' In these two last works he gave the best information up to that time concerning the Coptic language. 6. 'Cedipus Aegyptiacus,' hoc est, Universalis Hieroglyphicorum Veterum Doctrinae Temporum Injuria abolitae Instauratio,' 4 vols. fol., Rome, 1652-4. Kircher dedicated this work to the Emperor Ferdinand III., whose eulogium is prefixed, written in 20 languages and in 80 characters. The work is full of quotations from various authorities, Arabic, Assyrian, and Syriac writers: 7. 'China illustrata.' 8. 'De prodigiosis Crucibus quae post ultimum Incendium Venetii Montis Neapoli comparueante.' 9. 'Serutinum Festum.' 10. 'Latinum, i.e., nova et paraphrasia cognominitarum veterum Latinarum operum: subsistit, qua quockumque vel natura, vel veterum Romanorum ingenium admiranda efficit, geographico-historico-physico Raticinio, juxta rerum gestarum temporumque seriem expositor et exculcetor.' fol., Amsterdam, 1671, with maps and figures, and a minute description of Hadrian's villa, with a plan of it. This work of Kircher is one of his best, and may still be read with profit.

KIRKALDY, John, of Edinburgh, was a Unitarian. KIRKCALDY, together with Burntisland, Dysart, and Kinghorn, returns a member to parliament. For details respecting the town see FIFE.

KIRKE, John, of Wiltshire, was a Unitarian.

KIRKCRABB, near Dumfries, from which it is in part separated by the river Doon, and in part by the south-western extremity of the county, is 42 miles, and the greatest width, from the river Nith to Wigtown Bay, about 30 miles. The area is about 864 square miles, or 552,960 imperial acres, and comprises a portion of the ancient district of Galloway. [GALLOWAY.] The lands of this county, together with those of the adjoining shire of Wigtown, were enclosed in the early part of the last century by stone walls, known throughout the country by the name of Dr. Moore's wall, and made a portion of this system of enclosing brought with it the necessity of throwing several of the smaller farms into one, and occasioned an insurrection among the peasantry, which was quelled with difficulty. The system has now stood the test of more than a century, and has been considered an unremunerative expense, and the farmer of Galloway as being a race of farmers, who render more than the same amount of labour. The land is more protected with wood, renders the prospect unpleasing to the eye of the traveller. The system of enclosing has been carried into practice with great uniformity and success, and has been attended with the greatest advantage. The system is carried further into practice with great uniformity and success, and has been attended with the greatest advantage.

The coast, except in the upper part of Wigtown Bay, is generally bold and precipitous. The surface of the county is rough and barren, more particularly towards the sea-coast; but within the last forty years great improvements have taken place in the arable husbandry of the shire, and considerable tracts of land which were formerly unproductive have been brought into cultivation. The land towards the Frith, says Mr. James Battara, is frugal and thin; the land towards Wigtown is fertile; a considerable proportion of the land is watered by the banks of the rivers Dee and Nith. The chief elevations are Blacklairg in the north, which rises to the height of 1595 feet; Curinsmuir in the west (2598 feet); and Criffel, s described in the survey. It is said that a range of hills on the banks of the river Nith may be seen from the summit of Wigtown Frith, whose summit is 1383 feet above the sea-level.

The prevailing soil is a thin brown earth resting either upon a gravel bottom, or else upon a rock of a rotten slaty substance, which is readily pulverized. It is but slightly retentive of moisture, and its average depth does not exceed four inches. Oats are the grain chiefly cultivated. The potato crops are considerable, and constitute a principal article of export to England, after supplying the inhabitants and feeding a great number of swine. The turnip crops are less extensive, although the potato is peculiarly fitted for them. The manures employed are lime and sea-shells, in addition to the dung produced upon the farm. The farms, which are let on leases of nineteen years, are for the most part small; for although the enclosing of the district occasioned a considerable diminution in the number of small farms, the lands are still more subdivided here than in many of the counties of Scotland. There are however some large estates, and the principal farms are provided with threshing mills. The sheep are large and thickly set, the wild deer, which are numerous, and the annual value of the real property of the county in 1815 was about 213,368. The peculiar breed of horses which this and the adjoining county of Wigtown are famous for, and which was known by the name of the Galloway breed, is now almost extinct, as it is said to have been supplied by horses of a larger size and better adapted to draught. The sheep upon the moors and high grounds are mostly of the black-faced breed, but those
the possess
Kirkcudbright irregularly for its feet. His which revenue, he the a Yorkshire, time water,

The county contains a variety of minerals, but they have been only in few instances turned to any profitable account, which is mainly owing to the total absence of coal and the certainty of other minerals. The lead-mines which were wrought some years since near Newtownstewart, and which produced on an average about 400 tons of ore annually, have been abandoned for the reason above stated; and the present state of the lime stone, with an anvil in the vicinity, was conducted for several years by an English company, has been discontinued, partly for the same reason, and partly on account of the inconvenience attending the shipping of the ore.

Lime-cream, and freestone are all imported from the opposite coast of Cumberland. The only part of any note is the harbour of Kirkcudbright. Besides the numerous lakes distributed over the stewart, all which are of small extent, and 21,621 females; which were distributed among 611,095 families, whereas 2626 were occupied in agricultural pursuits, and 2293 in trade and handicraft.

The chief towns are Kirkcudbright and New Galloway, and the county is divided into 28 parishes, the united population of which in 1831 was 40,556, namely 18,969 males, and 21,621 females; which were distributed among 6223 families, whereof 2626 were occupied in agricultural pursuits, and 2293 in trade and handicraft.

The county sends one member to the imperial parliament.

Kirkcudbright, the county town, is agreeably situated on the eastern bank of the river of the Doar, about five miles from the mouth of the Bay of Kirkcudbright, and 85 miles south by west from Edinburgh. It was formerly a burgh of barony under the Douglases, but was granted to the earl of Galloway, and then it was erected by James II. into a burgh of regality by a charter dated Perth, 26th of October, 1455. The town is irregularly built, and consists of two principal streets at right angles to each other. The public buildings consist of a town-house, and race-course. The streets are lighted, cleansed, and protected by a police, the expense of which is defrayed from the burghal revenue, the inhabitant paying no local tax whatever. The property of the burgh consists of landed property, fisheries, and ferryage, which produced in 1832 a revenue of £364.

The debt of the burgh at that time amounted to £4343l., and its annual expenditure to £64l. The living is in the presbytery of Kirkcudbright and synod of Galloway. The school is conducted by the rector and other masters, and the arrangements for promoting the improvement of the scholars are said to have been judicious and successful.

In the vicinity of the town are the vestiges of several of the fortresses of the antient lords of Galloway, among which may be mentioned the castle of Kirkcudbright, erected by the Macellans, who still continue to derive the title of baron from that fortress. The most remarkable is the fort of Imaal, considered on the best coast of Scotland, affords good anchorage and shelter. At the head of it is a beautiful and nearly insulated spot called St. Mary's Isle, the seat of the earl of Selkirk. The population of the burgh in 1831 was 2636. This town unites with Dumfries, Annan, Lochmaben, and Sanquhar in returning one member to parliament.

(Sinclair's Account of the Agriculture of Scotland, 4to., Edinburgh, 1793; MacCulloch's Statistical Account of the British Empire; Beauties of Scotland; Parliamentary Papers, &c.)

KIRKDALE, a parish of some extent, near Kirkby Moorside in Yorkshire, remarkable for a very antient and ancient inscribed stone set up in memory of John Ward, toward the Confessor, accompanying a rude representation of a sun-dial. Still more worthy of attention is a cavern in the olitic limestone, not far from the church, which yielded a great quantity of bones, chiefly of extinct animals, and gave occasion to the publication of Dr. Buckland's valuable work the *Reliquiae Diluvianae.*

This cave had a nearly level floor (parallel to the limestone strata); its extent, according to Young and Bird, was 245 feet; the height varied from 3 to 6 feet or more. On the rocky floor was generally a bed of mud, covered over by an irregular layer of sparry stalagmite, formed by the dropping of water containing carbonate of lime in solution; and it was in this stalagmite and in the mud below it that the bones were found.

Of the animals to which the bones belonged six were Carnivora, viz. hyaena, felis, bear, wolf, fox, weasel; four Pachydermata, viz. elephant, rhinoceros, hippopotamus, horse; four Ruminantia, viz. ox, and three species of deer; four Rodentia, viz. lemming, rabbit, water-rat, mouse; five Birds, raven, pigeon, lark, duck, snipe.

The bones were almost universally broken; the fragments exhibited no marks of rolling in water, but a few were worn and polished, and showed signs of a travelled face; many indented, as if by the canine teeth of carnivorous animals. In the cave the peculiar excrement of hyaenas ('album graecum') was common; the remains of these pre-dacious beasts were the most abundant of all the bones; their teeth were found in every condition, from the milk-tooth to the old worn stump; and from the whole evidence, Dr. Buckland adopted the conclusion, in which almost every subsequent writer has acquiesced, that Kirkdale Cave was a deposit of hyaenas, during the glacial period, where elephants and hippopotami (not of existing species) lived in the northern regions of the globe, and that they dragged it into it for food the bodies of animals which frequented the vicinity. (Buckland, in Reliquiae Diluvianae.)

KIRKHAM, a town within the county of Lancashire. [KIRK SESSIONS. [SESSIONS, K.]]

KIRKHAM, RICHARD, a chemical philosopher of considerable eminence, was born in Ireland about the middle of the last century, and died in 1812. He was admitted for the profession either of lawyer or medicine, and was sent to be educated by the Jesuits of St. Omer's. On the death of his brother he however succeeded to the family estate, left St. Omer's, and abandoned all thoughts of a profession. His whole life was devoted to the cause of philosophy, and he has also written on some subjects not immediately connected with it. His knowledge was extensive and his memory accurate; but though he lived at a time when Black, Cavendish, Priestley, and Scheele were useful and interesting chemists, and in an age when experiments, he does not appear to have contributed any very remarkable original discovery: [VOL. XIII.—21]
he was nevertheless usefully employed in many investigations.

About the year 1779, when he was residing either in London or its neighbourhood, he read before the Royal Society, of which he became a Fellow, several papers, and in 1782 the Comte was awarded to him an Annual Prize for an Essay on Chemistry. In 1780 he returned to Ireland, and was for some time president of the Royal Irish Academy, and he was elected member or associate of most of the literary societies of Europe.

It would be useless to attempt an analysis of the memoirs of Kirwan; they include not merely chemical subjects, but meteorology and mineralogy, and are diffused through the Transactions of the Royal Society of London, those of the Royal Irish Academy, and other periodicals. Among his most remarkable separate works was 'An Essay on the Constitution of Acids,' in which he attempted to reconcile the ancient chemical philosophy with modern discoveries. This work was translated into French by Lavosier, with notes in refutation of its doctrines by Guyton-Morveau and Lavosier, &c.

In this publication Kirwan regards inflammable air as the true phlogiston, and in every case as the principle of inflammability, and he supposes that combustion can be no other than the combination of vital air with phlogiston. Without denying the appearance of the death-principle of cold water, he is of opinion that the inflammable air which is disengaged might be derived from the red-hot metal. His reasonings were completely refuted by the French philosopher, and are now generally discarded.

In 1794 he published 'Elements of Mineralogy,' in two volumes 8vo. This work, though now of course obsolete, was unquestionably useful in extending the boundaries of the science of which it treated. His 'Geological Essays' have never been considered as equally useful; but his 'Essay on the Analysis of Mineral Waters' contained a collection of what had been previously done on the subject, with new, and, in many cases, useful directions for conducting the requisite processes.

In 1809 he published a work on logic, which furnished ample materials for critical severity.

KISTNA. [HINDUSTAN, p. 205.]

KITCHEN-GARDEN. Every one knows what is generally understood by this name, a kitchen-garden forming a sort of inseparable adjunct to every country-house, to the mansion of the rich as well as to the humble cottage. In laying out the grounds of a country residence provision should be made for the site of the kitchen-garden. Though it should not obtrude on the ornamental ground immediately adjoining the house, the design of the whole should be such as to leave the kitchen-garden in the most favourable situation with regard to aspect, soil, and water. The aspect should be open to the south, but sheltered on other sides, more especially from northerly and easterly winds, by rising ground or lofty trees at some distance. The soil should be of a clayey nature, and be thoroughly exposed to the perennial nature of the subsoil, it may be quite so; but, generally speaking, a gentle slope from north to south is best. The soil should consist of a rich loam, neither too light nor so adhesive as to be liable to bind strongly in dry weather. The depth of soil ought not to be less than two feet, and more is absolutely necessary for some kinds of vegetables. If the subsoil be very impervious it should be sub-trenched; and in doing this the undisturbed bottom of the trench should form a regularly inclined plane towards a proper drain; or if more convenient the bottom may form several planes so inclined as to allow the water a descent to a drain running through the lowest points. In the formation of gardens this is frequently not sufficiently attended to; while care is taken that the surface of the soil should be fair to the eye, a comparatively unimportant circumstance. If the bottom be made as above directed, the most important and difficult part of the groundwork is accomplished.

Water is very frequently obtained by means of pumps placed in convenient situations throughout the garden; but this is not the best mode of supply, nor should it be resorted to except where there is no alternative. Much injury is occasioned by watering with cold water, or indeed with any water that is much colder than the soil and atmosphere in which the plants are placed.

Plants, when not watered at all in dry weather, if they are only kept alive, succeed better when rain does come than others that are watered, or rather chilled with water at a comparatively low temperature. The injurious effects of chilling plants by the application of very cold water is often visible in plants of a sluggish kind. After being thus planted from the seed-beds a quantity of cold water immediately poured round their roots, the surrounding dry soil absorbs a great portion of this supply, the remainder is soon exhaled by evaporation, and the process is again repeated until it is extinguished. In summer and early autumn, moisture in the air and dryness, derange the functions of the spongioles and roots; obstructions supervene, and occasion an accumulation of matter in the thinner parts of the root, which is the principal cause of what is called moulding; or the formation of protuberances in cabbage-roots, a disease which proves a check to their future development by incapacitating their roots for a due transmission of nourishment. Water for the kitchen-garden should therefore be derived from ponds or large reservoirs fully exposed to the sun, and whenever should be supplied by open rather than underground channels; they should also be shallow, for the following reason — the deeper the water the longer will a considerable portion next the bottom retain the temperature of its greatest depth. For instance, when the surface of the water is above this the warmest is next the surface; and therefore the flow of water for the garden should be from the surface of the pond or reservoir. This may easily be effected by introducing an open channel from the above point. When a broad sheet of water cannot be obtained for the supply of a garden some advantage will be gained by providing large cisterns in which water raised by pumps may be exposed to the air for some time previous to its being used.

The quantity of ground which a kitchen-garden should contain must be regulated according to the number of individuals which it is required to supply. An acre is calculated to afford a tolerable supply for sixteen individuals, but much depends on the nature of the soil. Potatoes, turnips, peas, and carrots are frequently obtained of better quality and at less expense from a field than from a garden. With respect to potatoes in particular, only early varieties are now generally cultivated in gardens. If the mansion be only fully occupied for a part of the year, the quantity of ground will require to be nearly as large as if the supply were required throughout the year. Thus, for example, a considerable breadth may be found necessary for peas in spring, and the same may be occupied with broccoli in autumn; so that the ground which would be sufficient for a few months' demand may be made equal to the whole season by a proper succession of crops. For instance, it will be found that where a steady supply is required, proportionally less land will be required than when the demand alternately exceeds and falls short of the mean.

A moderate establishment will require two acres of kitchen-garden, which is a plenty in most cases, according to our climate; in unusual circumstances it may be found necessary to have recourse to field culture for those productions to which that mode of rearing is more especially adapted.

The form of a kitchen-garden should be composed of straight lines. If rectangular, it will prove a saving of labour; for it is practically known that more time is required to trench a piece of ground of a triangular form, than if the same extent were in the shape of a square or parallelogram; and if the beds are to be watered, it should be remembered that various planters who may not happen to be accustomed to the method of working laid down by persons inclined sides are liable to make the surface irregular. A range of forcing-houses is generally placed on the north side; and as the wall on that side is the most valuable for fruit-trees on account of its direct south aspect, it is very desirable that it should be extended as much as possible on both or each of both ends of the range. The form of the kitchen-garden is consequently determined to be that of a parallelogram with the two long sides running due east and west. The enclosure is generally divided by two principal walls, containing also the various compartments, which should form an adjoining compartment well sheltered and excluded from the view on account of the quantities of litter and other fermenting substances which it must necessarily contain.

It is found that grapes ripen better against a very high wall than they do when trained on a low one. The conclu-
to be drawn from this fact must be, that a greater accumulation of heat will take place in front of a wall 12 feet high than where the height is less, and consequently trees will flourish for a greater extension of time, than if an increased degree of warmth. Therefore it will be evident that the walls of a kitchen-garden should not be less than the height above mentioned, with the exception of some on the south, which may be only 10 feet, because trees growing on the north side be made 14 feet high instead of 12 feet, greater utility and a better effect will result. Once erected, walls too valuable to be left unoccupied, and a border should accordingly be formed outside, as well as inside, for the reception of fruit-trees to be planted against them. This requires the enclosure of a slip, containing the wall-bound, as well, and a barrier between the latter and the outside space. If this outside or ring fence were formed of materials in which young trees could be trained, so as to fill any accidental vacancy that may occur on the principal walls, all advantages would accrue, for then the walls would always appear filled with trees in a bearing state. Such masonry trees should be carefully moved every second year, that they may always be in a proper condition for their local destination.

The interior departments of the kitchen-garden are usually bounded by fruit-trees planted within two or three feet of the walls. Not only are bushes, such as gooseberries, and currants, and wild black currants, with a great variety of fruit-trees of various kinds. The latter are trained either as dwarfs by grafting apples on paradise stocks, and pears on quinces, and causing their branches to proceed from near the ground; or as espaliers. The latter were formerly employed to cover the wall and obstruct the sight in the garden itself; and they are at the present time. Some object to their appearance, others to their expense compared with their utility. Their appearance is certainly not unsightly if we are not too low a judge of the old varieties of fruit-trees trained upon this plan were unprofitable, yet many of the new kinds will produce abundantly. They occupy very little space, and their shade, if not made higher than six feet, can be scarcely injurious, especially as it can be increased by the immediate proximity of the wall. Very few of the subjects of kitchen-garden cultivation are indigenous; they are chiefly varieties of luxuriant habits, which are artificially maintained and augmented by the art of the cultivator. The principal means employed for rendering the soil of the kitchen-garden subservient to this purpose are,—the application of abundance of manure, digging, and otherwise stirring the soil; and the rotation of crops. Manure supplied in abundance generally produce luxuriant vegetation. Experiments have been made by the late Mr. Wedge, on the effect produced by stirring exposes fresh soil, and gives rest to that which has been partially exhausted on the surface; it renders the soil pervious to water and air, and likewise for the roots of plants; in wet weather the latter are free from stagnant moisture; and in drought they seldom suffer, because they have been able to penetrate the soil so far as to be beyond the reach of dryness. Moreover, if a thermometer is plunged in well loosened soil, after a few days of hot sun in March, will be found to indicate a temperature many degrees higher than that of the soil kept free, or where the surface has been stirred for several years. The advantage of this communication of heat is obvious, especially when it is borne in mind that a number of kitchen-garden plants are natives of countries possessing a warmer soil and climate than those of Britain. It is always advantageous to attend to a proper rotation of crops, especially where manure is not abundantly applied, or notching performed. One kind of plant should not be allowed to follow another of the same nature, or easily allied. The following arrangement of Vegetables, according to the natural orders to which they belong, will exhibit one view the changes which may be made, more con


5. Apiaceae, or Umbelliferae. Carrot, Parsnip, Skirret, Celery, Parsley, Fennel, Dill, Charvi, Anise, Caraway, Coriander.


The limits of this article will not admit of a detailed account of the various modes of culture; those who wish for extensive information upon this subject are referred to "Loudon's Encyclopedia of Gardening," or to the "Guide to the Orchard and Kitchen-Garden.

The following is an attempt to show what description of plants a kitchen-garden should contain, and the different purposes to which they are applied:

1. Ornaceous Plants, consisting chiefly of the Cabbage tribe: 1. White close-headed (Early Dwarf, Early York, Early Batavia), 2. Red Cabbage (Early Red, Small dark Red), 3. Cauliflower (Early, Late). 4. Broccoli (Purple Cape, Early White, Grange's Early Cauliflower, Cream-coloured or D'Auvergne, Early and Late, Prince of Newport, Summer Cauliflower, Creamed). 5. Savoy (Early Dwarf, Yellow, Large Green). 6. Borecole (Large Curled, Dwarf Curled, or Scotch-kale, Purple-kale, Variegated Borecole, chiefly used for garnishing, Buddake, Egyptian-kale). 7. Brassica Sprouts, the finest and hardiest of Winter Sprouts; they have been known to withstand the most intense frost that has ever occurred in Britain.

Sea-kale and Asparagus may also be included in this division.


3. Pulse. 1. Peas (Early Dwarf, Early Frame, Early Charlton, D'Auvergne, Knight's Dwarf Marrow, Knight's Tall Marrow, Blue Prussian, White Prussian, Large-Crowned Sugar, Groom's Superb Dwarf Blue). 2. Beans (Early Mazagan, Green Long-pod, Windsor, Dutch Long-pod). 3. Kidney-beans and Runners (Early Cream-coloured, Negro; these two sorts are very proper for forcing; Black, Red-speckled; Scarlet Runner, White Dutch Runner).

4. Solads. 1. Lettuce (Hardy Hammersmith, Tennis-ball, Large White Malta, or White Silesian; the preceding are various sorts of Cabbage Lettuces, the following are Green, or upright-growing sorts, Egyptian, or Early Green, Brown, Paris Cove, Alpauge). 2. Endive (Broad-leaved Batavian, Small Batavian, Small Green-curbed, Large Green-curbed). 3. Sorrel. 4. Celery (White solid, Red solid, Violet). The following plants of a pungent nature are also used as salads: 2. Mustard (White). 6. Garden-cress. 7. American-cress.


5. Alliaceous Plants. 1. Onions (Early Silver-skinned, Yellow or Straw coloured; these are esteemed the best sorts for pickling; Strasbourg, Onion parisiens, or James's Keeping, Blood-red, Flat or Round Tripolis, Deptford, Globe, 212

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Fruits.
The Condiments.—Rhubarb, Parsley, Dill, Chives.

Navigable, Contributions to the Upper Thames, hardly ever undertaken until the superintendence of his two sons. In 1780 he underwent the necessary forms and examinations for the profession of an apothecary with great applause. His thesis "On Phosphorus and Distilled Waters" was printed in the "Lettres de l'Académie de Sciences".

His various analyses and contributions to chemical science were diffused through periodical publications till 1796, when he began to collect and publish them. The work, under the title of 'Contributions to the Chemical Sciences,' in three volumes, was published in 1802, and the last and sixth volume appeared in 1815, about a year before the death of the author. Besides this work, which contained 207 treatises, he published a Chemical Dictionary in 1811.

To enumerate the various minerals which he analyzed by processes perfectly new and peculiar, and with great accuracy than had ever before been practised, would be tedious; we may however mention, as the result of his labours, the discovery of the peculiar metal uranium in Becchende, and the earth zirconium in the hyacinth; he also imperfectly detailed the properties of titanium, which had previously been discovered by Gregor in Cornwall, and of berillium which had been noticed by Müller as a peculiar metal.

There were many minerals which, when Klaproth begs their analysis, he found it extremely difficult to render soluble, and without this it was impossible to arrive at a correct result; among these bodies was the corundum, or adamantine spar. This substance, though consisting almost entirely of clay or alumina, so long resisted all previously known means of analysis, that it was not rejected as a mineral until the analysis of the earthy part was successful. He found however that by treatment with caustic potash, instead of the carbonate, in a silver crucible, the refractory mineral was at length rendered soluble in acids, and was in fact alumina.

Numerous other improvements were introduced by the laborious and accurate analyst, into the processes of the chemist; the above is not the least important, and had therefore been referred to as a specimen of the value of his contributions to science.

The above process was of itself sufficient to alter the face of mineralogy, and indeed it is hardly assenting too much when we state that of all analyses previously performed scarcely half a dozen were correct. The great services thus rendered to chemistry and to the art of making silvers were not appreciated; about 1787 he was elected a member of the Royal Academy of Arts; and the year following he was chosen a member of the Royal Berlin Academy of Sciences. In 1790, he was made assessor in the Supreme College of Medicine at Harleian, and health, he was professor of medicine at the Royal Mining Institute; he had also other honourable appointments; and in 1811 the king of Prussia added the Order of the Red Eagle of the third class.

Klaproth married about 1765; his wife died in 1803, and they had three daughters and a son, who survived their parents. Klaproth died at Berlin on the 1st of January, 1817, in the 74th year of his age.

KL E N E B O K. [Antelop., vol. ii., p. 82.]
KLIPSPrINgER. [Antelop., vol. ii., p. 77.]
KLOPSTOCK, FRIEDRICH GOTTLIEB, was born at Quedlinburg, in the year 1724, of respectable parents, and frequented the gymnasium of that place. In his seventh year he went to the school at Merseburg, where his poetical character was first developed. Here he perfected himself in the ancient languages, and even at this early age resolved to compose a long epic poem, though he had not yet begun to write it. In 1743 he left school, on account of his ill health, and his first thought was of making the Emperor Henry I., commonly called the 'Fowler,' the hero of his work, and some odes by him on that sovereign show that he was then uppermost in his mind. In 1745 he studied theology at Jena, where he seems to have been in ill health. He was appointed Poet laureate of the Redenists, the society of his friends for it was then that he projected the first cantos of his "Verse
siah," and in 1748 the first three cantos appeared. The excitement created by this poem was surprising; some regarded him as an ectype of the antient prophets, while others, with Weiss, whose daughter fell in love with him, "lamented a return of his genius." This lady was the "Fanny" of his "Lobech" and liegt. Lely was invited to come to Venice, where his poem had made a great impression. In Switzerland he was received with a reverence that bestowed on it a sort of mark. While in this country his poem, which took a patriotic tendency, the antient Hermann (the Arminius of Tacitus) became his favorite hero, whose deeds he afterwards celebrated in some dramatic works. In Denmark the minister Bernstoff became acquainted with the three cantos of the "Messiah," and Lely was offered a pension of 600 dollars on condition of coming to Copenhagen and there finishing his poem. He set off in 1751, travelled through Brunswick and Hamburg, and at the latter place formed an intimacy with Margaretta Moller, daughter of a respectable merchant. At Copenhagen he was received by Bernstoff with the greatest respect, and introduced to the king, Frederick V., whom he accompanied on his travels. In 1754 he went to Hamburg, and there married his beloved Margaretta, who, and in the next year, his son George was born, a poem which enabled him to play his part in the antient Greek drama, in which the public as well as the crown were deeply interested; and the common law adopted that part of the funeral ode which records the burial of the great poet (i.e. poems), to compel those who held knight's fees [Knight's Fees] to take upon themselves the order of knighthood, or, in other words, to prove, by their reception into that order, that they had received the training and possessed the arms of knighthood, whether it was to other acts of the same kind, to take the field as knights. The statute, or rather the grant of i Edward II. enrolled in parliament, called 'Statutum de Milites,' appears to have been made, partly as an indulgence upon the commencement of a new reign, and partly for the purpose of remodelling some doubts which existed as to the persons liable to be called upon to receive knighthood. The king thereupon, in the first place, granted a reprieve until the following Christmas to all those who had been in any degree engaged in the drama, and then restrained all arms militaria suspicii. Further, it directed that if any complained in chancery that he was restrained and had not land to the value of forty pounds in fee, or for term of life, and was ready to verify that by the country (i.e. by the decision of a jury), then some discreet and lawful knights of the county should be written to, in order to make inquisition of the matter, and if they found it to be so, he was to have redress, and his distress was to be removed. Again, where the distress was caused by a person who had only a certain sum to be received thereof annually (i.e. respite, subject to payment by instalments), and the remainder of his land was not worth forty pounds per annum, the distress was to cease till the debt was paid. No one was to be dis- strained ad arma militaria suspicii till the age of twenty-one, or on account of land which he held in manors of the antient demesne of the crown as a sokeman, inasmuch as those lands were liable to pay a tallage when the king's land was so taxed. With respect to those who held land in the seage of other manors, and who performed no servitium forsemincum, or service due upon the tenure, though not expressed in the grant, the rolls of chancery in the times of the king's predecessors were to be searched, and it was to be ordered according to the former custom; the same of clerks in holy orders holding any lay fee, who would, if laymen, have been liable to become knights. No one was to be restrained in respect of property of burgage tenure.Persons under obligation to hold land in any short time, were extremely old, or had an infirmity in their limbs, or had some incurable disease, or the impediment of children, or law-suits, or other necessary excusas, were to appear and make fine before two commissioners nominated for the set, which was to be fixed by secretory fines from such disabled persons by way of compo- sition. Under this regulation those who were restrained upon holding land of the value of 40l. per annum either received knighthood or made fine to the king. The alteration in the nominal value of money occasioned by the
increased quantity of the precious metals, and still more by successive fraudulent degradations of the standard, gradually widened the circle within which estates were subjected to this burthen; and in the sixteenth and seventeenth centuries lands which, in the reign of Edward II., were no perhaps worth 4d. per annum, had risen in nominal value to 40/, and were often held by persons belonging to a totally different class from those who were designated by 1 Edward II., stat. 1, as persons having 40/ per manor to term.

That power of compelling those who refused to take upon themselves the order of knighthood, or rather of restraining them till they received knighthood, or compounded with the king by way of fine, which originally was a means of enforcing the tribal service and duty to the commonwealth, by persons holding a certain position and having a certain stake in the country, was perverted into a process for extorting money from those who would have been exempt at common law, which regulated the amount of a knight's fee by the sufficiency of the land to support a knight, and not by its fluctuating nominal value in a debased currency. This oppressive, if not dishonest proceeding, which was occasionally resorted to in the reigns of Edward VI. and Elizabeth, was reduced into a system by the rash advisers of Charles I., and was adopted by that unfortunate prince as one of the modes by which money might be raised without resorting to a parliament for assistance. The undisguised manner in which this antient prerogative was misused was, however, admirably pointed out by the bis of Bath and Wells, in his sermon on 27 Car. L. c. 26, that none shall be compelled, by writ or otherwise, to take upon him the order of knighthood, and that all proceedings concerning the same shall be void.

Persons have been required to take upon themselves the order of knighthood as a qualification for the performance of honourable services at coronations, in respect of the lands which they held by grand seigniety.

In Ireland an individual is now confirmed by the king (or queen when the throne is filled by a female) by simple verbal declaration attended with a slight form, without any patent or other written instrument. Sometimes, but rarely, knighthood is conferred on persons who do not claim precedence of royalty. This occasionally is awarded to governors of colonies, and other persons in prominent stations abroad. The lord-lieutenant of Ireland has a delegated authority of conferring this honour, which is very sparingly exercised.

Knighthood gives to the party precedence over esquires and other untitled gentlemen. 'Sir' is prefixed to the bap-tismal name of knights and baronets, and their wives have the legal designation of 'Dame,' which is ordinarily converted into 'Lady.'

A rank correspondent to our rank of knighthood has been found in all Christian countries. Some regard it as a kind of continuation of the equestrian order among the Romans. But it is safer to regard it as originating in Christian lands, especially in the wealthier empires of the eleventh and twelfth centuries, which were styled the chief of the order of knighthood as now existing may be traced. In such an inquiry there are two difficulties: first, to state with sufficient precision what is the thing to be proved; and, secondly, to obtain evidence of the commencement of an institution which probably grew, almost insensibly, out of a state of society common to the whole of civilized Europe.

It was a military institution, but there appears to have been something of a religious character belonging to it, and the order of knighthood, like the orders of the clergy, could be conferred only by persons who were themselves members of the order.

In early times the knights undertook the protection of pilgrims; others were vowed to the defence or recovery of the Holy Sepulchre. Some, knights-errant, roved about seeking adventures, a phrase not confined to books of romance, of which there are many on this subject, but furnishing instances of authentic dignity and daring.

There is a treatise by Bishop Hurd on chivalry.

But besides those who are simply knights, there are knights who are members of particular orders or classes.

These orders are found in most of the kingdoms of modern Europe, and some have had generals in the service of their founder, the sovereign prince. Such are the order of the Golden Fleece, instituted by Philip duke of Burgundy; the order of the Holy Ghost, instituted by Henry the Third of France; the order of St. Michael, instituted by Louis the Eleventh of France. Of the foreign orders, which are very numerous, a full account may be found in a work in two volumes octavo, entitled 'An Accurate Historical Account of all the Orders of Knighthood in the present Reign' by Sir John Anstis, an Englishman. Each of these orders has its peculiar badge, ribbons, and other decorations of the person. The three that are best known, the Garter, the Thistle, and Saint Patrick, belong to this class.

The Garter may claim to be considered as the most antient, and is indisputably the most illustrious order existing. It was founded by King Edward the Third soon after his return from the Holy Land, in the year 1348, and revived by William the Conqueror. The number at first was only twenty-five; besides the king himself. It had a bishop as its president, and other officers. It has furnished an innumerable wonder from the time of its foundation, the knights having been the most eminent persons of the English nation, together with many illustrious foreigners, of whom the greater part have been sovereign princes. The number was strictly confined to twenty-five and peculiarly fixed in the time of George the Third, when a new statute was made that the knights should be twenty-five, exclusive of any members of the royal family who should be admissible by preferment. It has been made that the number should be twenty-five, without reckoning the illustrious foreigners who might be admitted into the order. The history of the Order of the Garter has been treated of in a work by Elin Ashmoel, a herald of the College of Arms, entitled 'The Sign and Seal of the Second; or, the Order of the Garter.'

The Order of St. Patrick was instituted in 1783. The knights were fifteen, increased in 1832 to twenty-two, who are peers of Ireland.

The order of the Bath differs in some respects from those just spoken of. Knights of the Bath are found in the early history of the English sovereigns and foreign persons, in number indefinite, who were made knights in some manner, of which bathing constituted a part of the ceremonies, a coronation, royal marriages, or when the king's eldest son was made a knight. Such were the knights of the Bath in the days of Edward the Second; and there is a resemblance into an order consisting of thirty-six knights with a grand master at their head. The order so continued till the close of the wars, as Napoleon, when, during the regency (1812), the order was greatly extended, and the persons composing it were increased into three classes. The number of Crosses, the number of whom is not to exceed seventy-two: the Knights Commanders, the number of whom is not absolutely limited, but at the beginning not exceeding one hundred and eighty Englishmen and ten foreigners; and the Companion.

There are also knights of the Guelphic order, and knights of the Ionian order of Saint Michael and Saint George.

KNIGHT OF THE SHIRE is the designation given to the representative in parliament of English counties at large, as distinguished from such cities and towns as are counties of themselves (which are seldom, if ever, called shires), and the representatives of which, as well as the lords temporal, and the commons, sat together, as since we find that grants were occasionally made by the knights to be levied on the counties, whilst separate grants were made by the citizens and burgesses to be levied upon the towns and boroughs. (Rot. Parl.) The wages payable to knights of the shire for their attendance at parliament, including a reasonable time for their going up and coming.
were four children, a day, being double what was required; and the knight’s fee was satisfied by the performance of ten days’ service. On the other hand, a person holding a large knight’s fee, whether forming one or several estates, was bound to furnish a knight in respect of each.

Besides this permanent liability to military service, the tenant was subject to occasional burthens. The principal of these are the following incidental services:—First, Aids, or payments which the vassal holding knight’s service was bound to make for raising his lord’s person if taken prisoner; for making the lord’s eldest son a knight; and for marrying, i.e., providing a marriage portion for the lord’s eldest daughter. Secondly, Reliefs, being a payment made by the heir in the nature of a composition for leave to enter upon land descending to him after his father’s death. Thirdly, Primer Seisin, or the right of the crown, where the lands were held of the king, to a year’s profit of land descending to an heir who was of full age at the time of the death of his ancestor. Fourthly, Wardship, or the right to the custody of the body and lands of an heir to whom the land had descended during his minority, the king or other lord in such case taking the profits of the land during the minority to his own use, or selling the wardship for a fee. Primogeniture, or the state of being the eldest child of the family, and consequently of being heir presumptive, was not a stranger if he thought proper. Fifthly, Marriage, or, in a right to the land, or the land itself, which the heir must quit at his marriage, in order to pay the heir by the amount of which for which the lord had sold or which he might have obtained for the marriage. Sixthly, Fines upon Alienation. To these Blackstone adds a seventh, Escheat, or the returning of the land to the crown in the case of the non-occupation of land held without heirs. [Eschat.] But escheat is not peculiar to tenure by knight’s service.

This system, which Blackstone justly characterizes as a complicated and vexatious system, could not fail to the ground during the existence of the Commonwealth; and the abolition of this species of tenure was confirmed upon the Restoration, as it would have been absurd and dangerous to attempt a renewal of such oppressive burthens. Accordingly the 12th Car. II., c. 24, takes away tenure by knight’s service, whether the lands are held of the crown or of a subject, together with all its oppressive fruits and peculiar consequences, and converts every such tenure into free and common socage. [Socor.] Nothing can be more comprehensive than the terms of the act. The knight’s fees and other feudal survivals, even the amount of income sufficient to meet the expenses of a knight would fluctuate according to time and place. It is not therefore surprising that we find a knight’s fee sometimes described as consisting of 800 acres, some-
1760 he was elected to serve in parliament for the borough of Leominster, and in the following parliament of 1784, for the borough of Ludlow, for which he continued to sit until the year 1806, when he retired from parliament. While a member of the House of Commons he acted with Mr. Fox, but all his life in his political life it was clear to him that his heart and interest himself about politics. In 1814 he was appointed a trustee of the British Museum, as the representative of the Townley family.

In 1820 he commenced the formation of a collection of antiques and other works of art, to which his large fortune enabled him to make constant additions. It consisted principally of ancient bronzes and Greek coins; and it was preserved in his London house in Soho Square, which had a large room fitted up for the purpose. He bequeathed his collection (the value of which was estimated at £50,000) to the British Museum. He had originally intended to bequeath it to the Royal Academy. [British Museum, p. 435.] The bill legalizing the acceptance of this collection by the trustees of the British Museum received the royal assent on the 17th of June, 1824. Mr. Knight died in his house in London, on the 24th of April, 1824, and he was buried at Wormley church, in Herefordshire, where there is a monument to his memory, with a Latin epitaph written by Dr. Cornwall, bishop of Worcester.

Mr. Payne Knight began at an early age to admire the remains of Grecian art; and hence in his studies of Greek literature his attention was mainly directed to those subjects. He wrote Greek sculptures and coins, vitruvius, and the archaic Greek language. Accordingly his first work was 'An Account of the Remains of the Worship of Priapus lately existing at Isernia, in the kingdom of Naples,' a Discourse on the Worships of Priapus, and its connexion with the Mystic Theology of the Antients,' 4to, 1786. (Distributed by the Dilettanti Society.) This illustration of the obscure worship of Priapus was severely censured by the author of the 'Pursuits of Literature'; but although it may be doubted whether the subject was worthy of investigation, it is certain that Mr. Knight had no other object in view than the purely scientific one of elucidating an obscure part of the Greek theo-

His next production was 'An Analytical Essay on the Greek Alphabet,' 4to, London, 1791. This work (which was reviewed by Porson in the 'Monthly Review' for 1794: see his article reprinted in Porson's 'Tracts,' p. 108, 'Mus
cum Criticum,' vol. i., p. 489) was chiefly remarkable for an exposure of the forgery of certain Greek inscriptions which Fourmont pretended to have found in Laconia. These inscriptions had deceived the most eminent scholars, among whom was Porson himself, who lent one of the plates. The whole subject was re-examined by Payne Knight, who supported his opinion with an elaborate argument. A feeble attempt has been subsequently made by Raoul Rochette to defend them; but their pretensions are now universally admitted. (See Boeckh, 'Corr. Inscript. Græc.,' vol. i., pp. 61-104, whose work has completely exhausted the subject.) Mr. Knight next attempted poetry, for which the character of his mind did not at all fit him. In 1794 he published the 'Landscape,' a didactic poem, in three books, addressed to Uvedale Price, Esq. This poem contains many precepts, marked by sound judgment and good taste, on the subject to which it relates; and at the end are some sagacious remarks on the Park of Dillsburn, the event of which was still undetermined. It appears from the preface to Mr. Payne Knight's 'Illustration on the Picturesque' (published in 1794), that Mr. Knight proposed to Mr. Price that the papers written by the latter on rural improvement should be published with his poem of the 'Landscape,' in the same manner as Sir J. Reynolds' notes were published with Mr. Mason's 'Du Frensey,' but that the proposal came too late to enable Mr. Price to accept it. Mr. Knight published three other metrical works at different periods of his life. The first was a didactic poem, in verse, entitled 'Alfred, a Romance in rhyme,' 8vo, London, 1823.

In 1805 Mr. Payne Knight published 'An Analytical Enquiry into the Principles of Taste,' 8vo, London, which passed through several editions. This work is character-
ized by originality and acuteness of thought, and is the only production of Mr. Knight's which is interesting to the general reader. It was reviewed with some severity in the 'Edinburgh Review' for January, 1806. (See also some observations in the 'Quarterly Review,' 1831, vol. iv., p. 371.) Mr. Knight afterwards contributed to the 'Edinburgh Review' (Number for July, 1809) a critique of Falconer's 'Strabo,' a work published at the Clarendon Press. In the following year he published a Notice of Sydenham Smith. An article in reply, contributed by the three reviewers, appeared in the 'Edinburgh Review' for April, 1810: Mr. Knight's share of it extends from p. 101 to p. 177. Mr. Copleston afterwards rejoined, and the controversy with Mr. Knight ended in a grammatical discussion totally foreign to the question at issue. Mr. Knight assisted in making the University of Oxford responsible for the defects of a work published at the Clarendon Press, but he was unquestionably right in the representation of classical literature as being at a low ebb in Oxford at that time.

In 1809 were published 'Specimens of Ancient Sculpture,' selected from different Collections of Great Britain, by the Society of Dilettanti, &c., and a second volume was published in 1810. Mr. Knight's industry and taste; the subjects were chosen by him, and he wrote the prefaces and descriptions of the plates.

In 1816 Mr. Knight was examined by a select committee of the House of Commons on the Elgin Marbles. To evidence which he gave upon this occasion was not marked with his usual good taste as to the merits of the remains of Greek art; an examination of it, written in a hostile spirit, may be seen in the Report of the Select Committee of 1816, p. 543. See also a political squib reprinted in the 'Wig Guide.' Mr. Knight distributed a short Answer to 'Quarterly Review' among his literary friends in explanation of the parts of his evidence which he considered he had misrepresented.

In 1820 Mr. Knight published an edition of the Iliad in Odyssey, with prolegomena. His object in this edition was to restore the text of Homer to its original state. He rejected the Wolframian hypothesis concerning the origin of the Homeric poems, and supposed the Iliad and Odyssey to have been each the work of a single poet; the poet of the Odyssey being posterior to the poet of the Iliad. To this process by which he attempted to restore the text of those celebrated works, he gave the name of 'conjectural emendation,' and proposed the use of the two systems of modelling of the language, by the introduction of various duos in later times, and of the antient letter style of digamma. 2. The rejection of verses interpolated by later poets, and poets of the second rate. Many forms are restored, and many errors are detected; but the doubts are doubled, and conjectural grounds: and indeed the subject is one which does not in general admit of any close approach to certainty. The work however bears marks of considerable acuteness and originality of thought, and it furnishes much assistance towards conceiving the earliest form of the Greek language.

A superficial notice of this work is contained in the 'Quarterly Review' for April, 1823, in an article said to have been written by Ugo Foscoio. After Mr. Knight's death 1824 his friend Mr. Copleston, in his History of the Coins, published by the British Museum. ('Nummi Veteres, &c.,' 4to, London, 1824. A notice of this publication may be seen in the 'Philological Magazine,' vol. i., pp. 123-5. Besides the works above mentioned, Mr. Knight wrote several papers in the 'Classik Journal' and in the 'Archaeologia,' 1821, vol. xix. 369); the article on the works and life of Barry, in the 'Edinburgh Review' for August, 1810, is also by him. They may be reprinted in a larger form in the 'Proceedings of the Society of Antiquaries,' vol. iv., pp. 645-9. He likewise first published the celebrated Elean Inscription, concerning which see Boeckh, 'Corr. Inscript. Gr.,' No. 11.

K N I T H A R D, brother of the 8h

T H O M A S ANDREW, brother of the 8h

T H O M A S ANDREW, brother of the 8h

T H O M A S ANDREW, brother of the 8h
manufacture of iron, and when those works were necessarily estates on the banks of running streams. One of his principal works was the building, and he was a lover of what he called the "site of" the noble mansion afterwards erected by Mr. Payne Knight, and where malacitic iron of superior quality was manufactured, its locality being particularly favourable for a supply of iron.

Mr. Knight's education was so much neglected, that when, at the age of nine years, he was sent to school at Ludlow, he was scarcely able to do more than read. But the days of his childhood had not been passed without providing him with some attention, and a great turn for the observation of natural phenomena, and one of his being able to occupy himself in the country in what way pleased, he had already formed a close practical acquaintance with such plants and animals as Herefordshire could furnish. Eventually he occupied himself with researches into various points of vegetable and animal physiology. One of the most remarkable of his early investigations was contained in a paper read before the Royal Society in 1795, upon the importance of disease among fruit-trees, and upon the propagation of debility by grafting. The county of Hereford had long been celebrated for the produce of its orchards, and the cider made therefrom was in high esteem; but towards the end of the last century there was the most serious debility in the chief sorts, which had been oligurized by the county poet, Philips, became gradually less productive, their vitality being nearly exhausted. Still the old practice of grafting young stocks with the debilitated shoots of these trees generally prevailed. Mr. Knight, however, after years of experiments, satisfied himself that there is no renewal of vitality by the process of grafting, but merely a continuation of declining life, and that young grafted stocks soon became as much diseased as the old parent trees. He then commenced a course of experiments by fertilizing the blossoms of some hardy crab or apple with the pollen taken from the flowers of the most celebrated cider and eider fruits, and sowing the seeds thus artificially impregnated. From that time, till his death in 1797, he was the only vegetable physiologist of a high order; a character which he so ably sustained by various experimental researches into vegetable fermentation, the ascents and descent of sap in trees, the phenomena of germination, the influence of light upon leaves, and a variety of similar subjects. In 1797 he published a small work called "A Treatise on the Culture of the Apple and Pear, and on the Manufacture of Cider and Perry," in which he recommends raising new kinds from seed, and suitting the sorts produced to the peculiarities of each soil; a doctrine akin to his conviction that no one should be appointed a publican, and the influence on the quality of cider. Mr. Knight did not confine his experiments to the improvement of the apple only, but he raised many pears most valuable for the dessert, and so had a considerable number of Cardings in competition, and consequently capable of being cultivated by every farmer and cottager in the country. His seedling plums, strawberries, nectarines, and potatoes are also of great value, and an important addition to the luxuries and necessities of life.

The great object of this distinguished man seems to have been in all cases utility. It was chiefly to questions which he thought likely to lead to important practical results that his attention was directed, and the numerous papers communicated by him to the Transactions of the Horticultural Society, in the course of which he succeeded his friend Sir Joseph Banks, have all this distinguishing feature. No one has traced the progress of horticultural skill for the last twenty or thirty years can be ignorant that it is mainly due to the writings and practices of Mr. Knight; he was probably the best practical gardener of his day. It is, however, not a little remarkable that with so very extensive a knowledge of the facts of vegetable physiology, he should have been so unfortunate as he certainly was in many of his explanations of them. This arose no doubt from his great acquaintance with vegetable anatomy, and consequently with the minute means by which Nature brings about her results in organised matter. Mr. Knight's experiments were not confined to the vegetable world, but extended to the habits of animals, and one of his last communications to the Royal Society was on the subject of animal instinct. At a late period of his life he also made some attempts to improve the breed of draught horses, by crossing the large London or Flanders-bred horses with the strong and compact Norwegian.

mace, the result of which was not ascertained at the time of his death, but was expected, from the appearance of the disease, that it was a great success. He died in London on the 11th of May, 1838, in the 86th year of his age.

KNIGHTON, HENRY, an English historian of the close of the fourteenth and beginning of the fifteenth century, was a canon-regular of Leicester abbey. The time of his birth is unknown; he died in London in 1437, and is commemorated in the church of St. John the Baptist in Holborn.

KNITSTIIAEBAE. [AOGUNQINS.]

KNOT. [SCLOPISPACDE.]

KNOX, JOHN, the son of obscure parents, was born in 1505. He had been brought up in the church, which was probably the village of Gifford in East Lothian, although it has been asserted that he was born at Haddington. His education was more liberal than was then common. In his youth he was put to the grammar-school at Haddington, and about 1524 removed to the University of St. Andrews, where the learning principally taught was the philosophy of Aristotle, scholastic theology, civil and canon law, and the Latin language; Greek and Hebrew were not taught. He early showed a great taste for, and became well versed in, the Hebrew tongue. Having studied for some years, he was granted a master's degree. After he was created Master of Arts he taught philosophy, most probably as an assistant or private lecturer in the university, and his class became celebrated. He was ordained a priest at the age of 25. He obtained the rectorate of the church, which must have taken place previous to the year 1530, at which time he had attained his 25th year, the canonical age for receiving ordination. (McCr. 's Life, p. 19.) His first instruction in theology was received from John Major, the professor of theology in the university, but the opinions founded upon it were not long retained; the writings of Jerome and Augustin attracted his attention, and the examination of them led to a complete transformation in Mr. Knox. It was thought that his succession from Roman Catholic doctrines and discipline commenced, but he did not declare himself a Protestant until 1542. The Reformed doctrines had made considerable progress in Scotland before this time. Knox was not the first reformer, there were many persons, "caris, barons, gentlemen, honest burgesses, and craftsmen," who already professed the new creed though they durst not avow it; it was to the avarial, extension, and establishment of the Reformed religion that circumstances, together with Mr. Knox's own disposition and research, contributed. His apprehension of the prevalent corruptions made him regard as a heretic; for which reason he could not safely remain in St. Andrews, which was wholly in the power of the papacy. He therefore determined to forsake the church of Rome, and he retired to the south of Scotland, where he avowed his apostacy. He was condemned as a heretic, degraded from the priesthood, and it is said by Beza that Beaton employed assassins to waylay him. He now for a time frequented the preaching of the Reformers and teachers, Williams and Wishart, who gave additional strength to opinions already pretty firmly rooted; and having reinvigorated all thoughts of offecating in the Roman Catholic church, he became tutor to the sons of Hugh Douglas of Langniddie, a gentleman of East Lothian, who had embraced the Reformed doctrines. After the murder of Cardinal Beaton, Knox removed with his pupils from Langniddie to St. Andrew's (1547), where he conducted their education in his accustomed manner, catechising and reading to them in the church belonging to the city. There were many hearers of these instructions, who urged him and finally called upon him to become a public preacher. Diffident and reluctant at first, upon the determined and persistent request of many of the inhabitants he was presented to their request. In his preaching, far more than the reformed teachers who had preceded him, he struck at the very foundations of popery, and challenged his opponents to argument, to be delivered either in writing or from the pulpit, and so subject to all. But that many of the inhabitants were converted to his doctrines.

It was not long before an event took place by which his efforts received a temporary check. The murder of Cardinal Beaton had given great offence, and occasioned such excitement through the kingdom. It was a severe blow to the
Roman Catholic religion and the French interest in Scotland, both of which he had zealously supported, and vengeance was loudly called for upon the conspirators by whom he had been murdered. The summer trials of the leaders of the abortive attack on fortified places was then so imperfectly understood in Scotland that for five months they resisted the efforts of Arran, the Regent. From their long wars in Italy and Germany, the French had been accustomed to the sight of sieges; and the Highland Scotch were ignorant. The French were allies of Scotland; to France therefore Arran sent for assistance. About the end of June, 1547, a French fleet, with a considerable body of land forces, appeared before the town. (Robertson, vol. iii. p. 40.) The capital of Knox, St. Andrews, was surrounded, and Knox, with many others, was taken prisoner, and conveyed to Rouen, where he was confined on board the galley. After nineteen months' close imprisonment he was liberated, with his health greatly injured by the rigour with which he had been treated (1549). Knox now repaired to England, and though he had never received ordination as a Protestant, Crammer did not hesitate to send him from London to preach in Berwick. In Berwick and the North of England he followed his ardent undertaking of conversion until 1551, when he was made one of King Edward's chaplains, with a salary of 40£ a year. While his friends in the English administration offered him further preferment, which he declined, his enemies brought charges against him before the court, and he was soon delivered into the hands of the law. He was in London at the time of Edward's death, but thought it prudent to fly the kingdom as soon as Mary's policy towards the Protestants became apparent. In January, 1558, he returned from Dieppe to Geneva, and from Geneva to Frankfort, where Calvin requested him to take charge of a congregation of English refugees. In consequence of some disputes he returned from Frankfort to Geneva, and, after a few months' residence there, to Scotland, where he again zealously promulgated his doctrines. The English congregation at Geneva having appointed him their preacher, he thought right to make another journey to the Continent (1558), which he quitted finally in 1559. But the last years of his life were not spent in peace, the First Blast of the Trumpet against the monstrous Regiment of Women, in which he vehemently attacked the admission of females to the government of nations. Its first sentence runs thus: 'To promote a woman to bear rule, superiority, dominion, or empire, above any realm, nation, or city, is repugnant to nature, contumely to God, a thing most contrary to his revealed will and approved ordinance, and finally it is the subversion of all equity and justice.' This incendiary exhibit of the qualities which had been expected excited hostility against his author. At the time of its publication both England and Scotland were governed by females; Mary of Guise, the queen-dowager of Scotland, was likewise regent of that kingdom, while the Princess Mary Stuart, her daughter, was regent of England. Mary and her sister Elizabeth the next in succession to the crown. It hardly admits of wonder then that when, in 1559, Knox was desirous of returning to England, Queen Elizabeth's ministers would not permit him to do so, and he was compelled to land at Leith.

The Prostestants in Scotland were by this time nearly equal to the Roman Catholics, both in power and in number; but their condition had lately been changed somewhat for the worse. The queen regent, who had found it desirable to conciliate and uphold them, from similar motives had become their opponent and oppressor; and many of the preachers of the 'Congregation' (the name by which the body of Protestants was then called) were summoned for various causes to take their trial. It was on a day not long previous to these trials that Knox returned to his country to resume the labours of his ministry bearing the condition of his associates, 'he hurried instantly (says Robertson, vol. iii. p. 99) to show by his brotherly care and common danger, or to assist them in the common cause. While their minds were in that ferment which the queen's perfidiousness (she had broken a promise to stop the trial) and their own danger occasioned, he mounted the pulpit, and addressed them on the subject of 'the multitude with the utmost rage.' The indiscretion of a priest, who, immediately after Knox's sermon, was preparing to celebrate mass, caused a violent tumult. The churches in the city were broken open, altars were overturned, pious
KONIGSBERG is one of the two governments which constitute the province of East Prussia, that of the ancient kingdom of that name, which is now divided into East and West Prussia. It is the most north-easterly part of the Prussian dominions, and is bounded on the north by the Baltic, on the north-east by Russia, on the east by the governments of Marienwerder and Danzig. Its area is 8827 square miles, including the large bay called the Frische Haff, and the population at the end of 1837 was 746,462, of whom 3943 were Jews. The government is divided into 20 circuses (Prussia).

KONIGSBERG, the capital of the two provinces of East and West Prussia, and the second city in the Prussian dominions, lies in 54° 42' 12" N. lat. and 20° 29' 10" E. long. It is situated on the navigable river Pregel, which falls into the Frische Haff about four miles below the city. The river, which runs from east to west, approaches the city in two arms, which uniting form an island. Königsberg is built on both sides of the river, and on the island. It consists of three parts, called the Old Town, Lübenicht, and the Kneiphof, and embraces, besides the royal town, the city of Friedericksberg, and four large suburbs and ten smaller ones called Liberties. The Old Town and Lübenicht, both of which are on the north side of the river, are built on seven hills, and the Kneiphof of which is swampy, and the houses are erected on piles.

The origin of Königsberg was in the thirteenth century, when Otto I., king of Bohemia, and other princes, having, by the command of the pope, assisted the knights of the Teutonic order in their wars, and having in 1234 joined the Hanseatic League, and in 1457, when Marenberg was betrayed to the Poles, Königsberg was chosen for the residence of the grand master of the Teutonic order, and so remained till Prussia was transformed into a kingdom in 1525. It was to this island to which the Reformers had made great progress in that province. In 1567 Prussia was ceded by the peace of Wehlau to the elector of Brandenburg, who built the citadel to overawe the citizens. In 1701 Frederick III. was crowned here as the first king of Prussia. In the Seven Years' War Königsberg was occupied from 1758 to 1764 by the Russians, who governed the country in the name of the Empress Elizabeth; and it again suffered severely from the exactions of the French, who occupied it in 1813, and gave it numerous heavy contributions. It was again visited by the French in the Russian campaign, large bodies of whom passed through it after their defeat.

The impression, says Prussia, which the interior of the city makes on a stranger cannot be called favourable, not...
withstanding the scene of busy life which it presents, on account of the want of regularity in the place, and the mean appearance of the streets, which are generally narrow and often crooked: the few handsome public and private edifices scattered over the whole city. There are seven wooden bridges over the Pregel. The castle, or royal palace, originally built, as we have said, in 1225, has been gradually altered, enlarged, and beautified till it has obtained its present form. The most interesting part of the town is the Market place, 274 feet long and 59 wide, without pillars, and the tower 540 feet high (278 above the Pregel), from the top of which there is a fine prospect of the city and environs. The most remarkable building is the Chancellery, which was reduced in 1392. It is a fine edifice, 5000 pipes, many excellent paintings by Lucas Cranach and others; the Wallemott Library, in which are several autograph letters from Luther to Catherine Bora, and the original of the summons and the safe conduct which Luther received to appear at the diet at Worms. Among the numerous public institutions is the university, founded by Duke Albert in 1544. It has now 27 ordinary and 11 extraordinary professors, and 18 private lecturers, in all 56, and about 450 students. With the university are combined the most important scientific institutions, such as a theological seminary (in two divisions), one philological, one historical, one homiletic, one Polish, one Lithuanian seminary, a library of 6000 volumes, a botanical garden (founded in 1809, with between 4500 and 5000 species of plants), and an observatory, which has of late years attained great celebrity from the astronomical observations of Professor Bessel. There are likewise three gymnasiums, and very numerous schools, with many charitable institutions. Königsberg has many manufactories, but not on an extensive scale, of woollen, linen, silk, cloth, leather, tobacco, and sugar; it has celebrated breweries and brandy distilleries, &c. Its geographical position has long made it an important place of trade. Its most flourishing period was from 1733 to 1769, when nearly 2000 ships arrived and as many left the port every year. Its most unfortunate period was between 1823 and 1826, when the number of arrivals and departures was less than 300. Commerce has not since revived a little. The chief trade is in corn; beer, flax, hemp, tallow, wax, briestiles, and quills are likewise exported. Königsberg, according to the census of 1837, contained 64,200 inhabitants.

KOBA. [Georgia, p. 176.]
KOOD. [Antelope, vol. ii., p. 78.]
KOOM. [Persia.]

Koran. [Mohammed.]
Koray, ADEIMANTOS, born at Smyrna in 1748, of a Greek family, studied first at Smyrna, and afterwards at Montpellier, where he obtained a degree as doctor of medicine, and settled in France. He wrote several works on medicine, and published French translations of the treatise of Hippocrates 'On Air, Water, and Situation,' with additions of the 'Commentaries' of Theophrastus. In 1801 he translated into modern Greek Beccari's treatise 'On Crimes and Punishments,' which is dedicated to the then newly constituted republic of the Ionian Islands. He afterwards wrote in French a memoir, 'De l'Etat Actuel de la Civilization en Grèce,' 1803, which, being translated into modern Greek, answered the double purpose of making the people of Western Europe acquainted with the moral and intellectual condition of his countrymen, and making the Greeks acquainted with themselves. Koray also undertook to edit a series of antient Greek writers, under the title of the 'Hel lenic Library.' He began with the 'Orations of Isocrates,' vol. 8vo, Paris, 1807, which he accompanied with interesting prefaces and explanatory notes. He afterwards edited in succession the 'Lives of Plutarch,' the 'Histories of Albin,' the fragments of Heraclides and of Nicolaus Damascenus, the fables of Aesop, Strabo, the first founder, as of making the Greek Politic and the Logic of Aristotle.

The reputation of Koray attracted many young Greeks to him, who profited by his conversation and instruction. Although long absent from his native country he felt to the last the most lively interest in her fate. He foresaw that a revival of superstitious and learned age, and wished the minds of the Greeks to be prepared for it. He encouraged particularly the diffusion of education, the formation of new schools in Greece, and he furnished directions for the method and course of studies. He also contributed to fix the rules and orthography of the modern Greek, in which he took a middle path between the system of Neoplythos Dokas, which Koray stigmatized with the name of 'maraconic,' and that of Christopoulos, which affected to write the modern Greek without any regard to the language by discarding the numerous Italicisms, Gallicisms, and Germanisms, which had been introduced into it, and by substituting old Greek words, at the same time avoiding the octosyllabic and tetrasyllabic rhythms of the national language.

Rizis, Oeuvres de Littérature Grecque Moderne, 1827.)

Koray died at Paris a few years ago, having had the satisfaction of seeing the struggle in which his countrymen had engaged rewarded by success.

Kordofan, a country in the northeastern parts of Africa, south of Nubia, extends from about 15° 20' to 10° N. lat., and from 28° to 32° E. long. It is divided from Darfur, which lies to the west, and from Nubia, which lies farther north, by deserts, in which water occurs only at a few places, and not in all seasons. On the east it extends to the Bahr el Abiad, or western branch of the Nile, which divides it from Sennar. Its southern boundary-line is unknown, and stated to be formed by extensive forests covering the southern declivity of the Dar or Tuggala Mountains, and inhabited by negroes.

The southern districts, as far north as 12° N. lat., have a broken surface, and the hills rise in some parts to a considerable height. This seems to be the best part of the country, and the most fertile. The Pregel, which is there, yield an abundance of drinkable water. Gold-dust is collected in several places; and iron-ore is abundant and worked. The country north of 15° N. lat. may be considered as elevated and level plains, on which several isolated groups of hills rise at considerable distances from one another. These hills are the only places which are inhabited, because it is only in their neighbourhood that wells are found which yield water all the year round. Certain wandering tribes suffer depressions in the plain, where, in the rainy season, temporary lakes are formed, which preserve the water during the greater part of the year. The plain itself is partly covered with grass and partly with low thorny bushes; in a few places forest trees occur. Darfur, which is the best part of the rainy season, lasts from April to September, the plain is partly covered with water, and affords pasture for numerous herds of cattle. In the dry season it is changed into a desert. No river traverses this country, with the exception of the Bahr el Abiad, which constitutes its eastern boundary.

Agriculture does not extend beyond the neighbourhood of the inhabited places. The principal objects of cultivation are cotton, corn, and rice. The principal trees in the southern districts are the locust, which yields a fiber called sisal or sesamum. In a few places wheat and barley are grown. The wandering tribes of the Beduin Arabs have herds of cattle, horses, and camels. The horses are of an excellent breed, and the cattle have a bountiful of fat. The tribes of the Bahr el Abiad are inhabiting the plains to keep a great number of cattle, sheep, and goats, but few camels and horses. Among the wild animals Ruppell mentions elephants, giraffes, and several kinds of antelope. The Korofun is inhabited by three races of men: the Dongolawi, or Nuba; the Dongolawi, or Nuba; and the Beduin Arabs. The first, who may be considered as the native inhabitants, are exclusively in possession of the southern hilly country, but a great number of them are settled in the plains where the caravan passes. The second tribe of the Beduin Arabs are merchants, and settled in those places where the caravans pass. They have introduced horticulture and artificial irrigation into Korofun; and their orchards contain date-trees. The different tribes of the Beduin Arabs wander about in the plains; they cultivate by far a good deal of doghen for their own consumption. They are known under the name of Bakar Arabs.

Kordofan was subject to the sovereignty of Sennar up to the beginning of the present century, when it was ceded from him by the king of Darfur, in whose possession it remained to the year 1820, when it was conquered by the arms of Mahomet Ali, Pasha of Egypt. At the time when the province was ceded from the king of Darfur, Obeid, its capital, was a considerable town, and the possessors have resorted to it for slaves, ivory, gold-dust, gum arabic, ostrich feathers, tamarinds, and honey. But on the occupation of the Egyptian Turks the town was destroyed, and Ruppl
KÖRNER, THEODOR, was born at Dresden in the year 1791, of respectable parents. The weakness of his health prevented any great application to study, and as a child he was rather remarked for the amiability of his disposition than for any intellectual acquisitions. However, he discovered an evident genius of strength, and showed an early inclination to history, mathematics, and physical science. Above all he loved poetry, and was encouraged in his juvenile compositions by his father, who, as an ardent admirer of the works of Goethe and Schiller, being educated at a school in Dresden, and by private teachers, did not leave his father's house till he was near seventeen, when, being designed to fill some office in the army, he was sent to the Bergacademia* at Freiberg, where he made great progress. After completing the necessary course of study, he went to the university at Leipzig, and afterwards to Berlin. A fit of illness however, and the dislike which his father had to the wild spirit then reigning among German students, were the cause of his being sent to military service. He was appointed to the 18th, 51st, and 12th; poetry, 'Die Braut' (The Bride), and 'Der grüne Dotter' (The Green Domino), were acted at the theatre in 1812, and meeting with success were followed by others, which 'Zriny' and 'Rossmunde' (the English Fair Robin), two tragedies, were works aiming at a high character.

The events of the year 1813 made a deep impression on Körner. Inspired by patriotic zeal, he resolved to engage in the cause of France against the French, and joined the volunteer corps under Major Lütitz. He was wounded by sabre cuts at the battle of Kützgen, and lay concealed and disabled in a wood, whither his horse had carried him; and he was removed by two peasants, sent by his comrades, and restored to safety. In a subsequent battle, fought on the 28th August, on the road from Gadebusch to Schwentin, he was killed by a shot, and buried by his comrades at the foot of an oak on the road from Lübenow to Dreiikrug, with all works of honour, and his name was cut on the bark of the tree.

As Körner was scarcely twenty-two years of age at the time of his death, his works, which are rather numerous, will be judged with lenity. To comprehend the great immensity of his poetic work, it is necessary for the reader to throw himself back to the day when a ferment of unexpressed passions was the cause of his violent character, and deep-rooted hatred felt by the Prussians for the French. His fame chiefly rests on a collection of lyrical verses called 'Leiter und Schwert' (Lyre and Sword), many of which were written in camp, and which, though not properly felt and appreciated when written, and studied in connection with the events that occasioned their composition, and with the understanding of the sincerity of the poet's character, this very stamp of sincerity is the chief beauty of his works: they contain no new thoughts or striking creations of imagination, but are pervaded by one sentiment, the glory of fighting and dying for 'fatherland,' expressed in a variety of shapes. When an attempt is made at more accurate criticism, it is observed that Körner, to make his verse strikingly poetic, often expressed himself in a manner such as is usually only the case with the 'metaphysics' of the French and Cowards. The happiest effort of imagination is his 'Schwert-tied' (Sword-song), in which the hero becomes a person and addresses its owner; a piece which has been translated (not very closely) by Lord F. D. L. Lower.

Hajdú of his life been of longer duration, it is doubtful if he would have attained any great eminence as a dramatist. Rather deeper thoughts in his dramas than in his 'Leiter und Schwert'; some scenic situations are extremely powerful, and there is a character, for instance Solymann the

A Bergacademia is an institution where the principles and practice of 

Great in 'Zriny,' is boldly drawn. He also evinces a knowledge of that distribution of incidents which constitutes dramatic construction, but he has unfortunately two great faults of the most opposite character; on the one hand, he perpetually interrupts the action of his play by long speeches, which, merely descriptive, historical, and logical phenomena unconnected with the subject; and on the other, he has an inordinate taste for melodramatic situations and catastrophes. If the former fault had increased he would have been no dramatist at all; if the latter, he would have been a playwright to complete editions of his works, in one volume, was published at Berlin in 1835.

KOSCIUSKO, THADDEUS, born in 1756, of a noble but not wealthy family of Lithuania, after studying first at Warsaw, and afterwards at Paris, for a military profession, was made a captain in the Polish army. He afterwards returned to Paris, and volunteered to accompany La Fayette and others, who were going to assist the revolted American colonies against England. In America he distinguished himself by his bravery, obtained the rank of general officer in the American army with a pension, and after the end of the war returned to his native country. In 1789 he was made major-general in the Polish army. He served with distinction in the campaign of 1792 against the Russians, but king Stanislaus having soon after submitted to the will of the emperor Catherine, and Poland being occupied by Russian troops, Kosciusko with several other officers left the service and withdrew to Germany. When the revolution broke out in 1793, he sent a proclamation to the inhabitants of Aost, that it was his determination to resist the oppressions of the conqueror, and to endeavor, if possible, to drive the Prussians near Warsaw, but was defeated and obliged to retire into his entrenched camp before the capital. He then defended that city for two months against the combined forces of Russia and Prussia, and obliged them to raise the siege. Fresh Russian armies however, marching advanced from the interior of Russia and negotiated terms of surrender. In 1815, he was again in the field, and Kosciusko marched against them with 21,000 men. The Russians were nearly three times the number, and on the 10th October the battle of Dierikow took place, from which Kosciusko and his army were retired two hundred miles from Warsaw. After a desperate struggle the Poles were routed, and Kosciusko being wounded, was taken prisoner, explaining that there was an end of Poland. The storming of Praga by Suwarow and the capitulation of Warsaw soon followed. Kosciusko was taken to St. Petersburg as a state prisoner, but being afterwards released by the emperor Paul, he repaired to America, and afterwards returned to France about 1798. Napoleon repeatedly encouraged him to expatriate himself, and even offered to give him a pension. Dombrowski and other Polish officers had done, and to use the influence of his name among his countrymen to excite them against Russia; but Kosciusko saw through the Polish ambition of the conqueror, and declined appearing again on the political stage. He was allowed by the French 'Moniteur' ascribed to him in 1806 was a fabrication. He continued to live in retirement in France until 1814, when he wrote to the emperor Alexander recommending to him the fate of his country. In 1815, after the establishment of the new kingdom of Poland, Kosciusko wrote again to the emperor thanking him for what he had done for the Poles, but expressing at the same time the desire to extend the benefit of nationality to the Jews, and declaring his wish to spend the rest of his days in the service of his country. Soon after he wrote to Prince Crantorincki, testifying likewise his gratitude for the revival of the Polish name, and his disappointment at the cruel treatment of the Poles, and the injury to himself of the imperial extent of the new kingdom, which however he attributed 'not to the intention of the emperor, but to the policy of his cabinet, and concluded by saying that as he could not be of any further use to his country, he was going to end his days in Switzerland.' (Ogiński, Mémoires sur la Pologne, vol. 2, p. 957.)

In 1816 Kosciusko settled at Soleure, in Switzerland, where he applied himself to agricultural pursuits. He died in October, 1817, in consequence of a fall from his horse. His remains were returned to Cracow, where they were embalmed, and placed in the vaults of the kings of Poland, and a monument was raised to his memory.
Dr. Buckland, Von Meyer, &c., for the occurrence of bones of extinct quadrupeds (hyaena, felsis, elephant, rhinoceros, &c., &c.), and of the limestone and gypsum which occur in that district. Generally, the bones of extinct quadrupeds lie in large cavities of the gypsum, while the fissures therein often contain remains of living races. Bones of men also occur, but are often in later days those which accompany the perish ed races of hyaena, felsis, elephant, and rhinoceros. (Meyer, Palaeontologia, p. 438.)

KOSTROMA. [Costroma.]

KLAGTZEBE: he was an actual working writer for the stage, and his knowledge of dramatic construction and stage effect must call forth the approbation of every qualified judge. In his characters he is very unequal: some of them are absolute impossibilities, uttering nothing but the most unintelligible expressions, and their exquisiter sketch may be found; and it would not be difficult to select from his works scenes of the deepest pathos. He wrote too much. There is a great difference between a writer who gives his thoughts in a dramatic form, and an author who goes on constructing plays whether he has new thoughts or not; and indeed this is the difference between the dramatist, in the high sense of the word, and the mere playwright, to which latter character Kotzebue too frequently confers himself. He has written the greatest number of plays the German language has yet seen, and of which he was the author. (The Two Kingsbergers, a genteel comedy of great merit, but little known in the country.)

Kotzebue's dramas had rather an unfortunate effect on the estimation of German literature in England. The start of the 'Anti-Jacobi' attacked him with great and often well-merited severity, but they mixed up with his works the productions of Goethe and Schiller, and thus writers of the most unqualified merits. He was one of the leaders of the 'German School.' Now that a real knowledge of German literature is spreading, a critic would be ashamed to trust to a mere translation (as did the writers of the 'Anti-Jacobi'); and any attempt to classify so second-rate a writer, a simple writer—such as Kotzebue—under the same head as Goethe would be treated with contempt, excepting when some of the minor and inferior works of the latter might warrant a comparison.

KOTZEBOE, OTTO VON, captain in the Russian navy, was born in 1784. In the year 1814 he set out on a voyage round the world, which he completed in 1815, and of which he published an account three years afterwards. He had previously gone round the world as a midshipman under Kronstein. In 1824 he undertook a third voyage as captain of an imperial man-of-war, when he discovered two islands in the South Sea, and returned in 1826. An account of this voyage was published in London, by Kotzebue's companion, Dr. Etoholz, and by himself in St. Petersburg.

KOULI-KHAN. [Nadir Shahr.]

KRAMERIA TRIANDRA, or RHATANY, is a small low-lying undershrub, growing on the dry, rocky parts of the mountains of Peru, near Huamaco, &c. The native name is Rhatania. The root, which is a part of the herb in the spring, is from four to eight inches long, and from half an inch to two inches thick, with knotty but not strong ramifications, and is very variable in shape. The bark is thin, uneven, and easily separates from the woody part. The root is heavy, and devoid of odour; but the taste, especially of the bark, is strongly astringent and bitter, yet not disagreeable. Iodine turns it black. According to the analysis of Gmelin, it contains much tannin, with succarcharum and a gum as well as a knoedlirer, apal; four calsiding to Pescher, it contains kranmeric acid. This root, from which, in Peru, an extract is formed, is a mild, easily assimilated, astringent medicine, possessed of great power in the cure of the wounds of the digestive organs, muscular debility, and even intermittent and putrid fevers. The powder forms, along with charcoal, an excellent tooth-powder; and an infusion is used as a gargle and wash.

KRIPUS is the name of a small natural order of Polyptelates exogenous plants, by most botanists referred to Polygalaean, but apparently distinct in having stamens separate from the petals, which are disjoined, and all the parts of the flower highly irregular and unisemorial. There are about five to ten species, some of them having very irregular petals; from one to four unequal hypogynous
Kuh 255

KUH, or KOOR, the ancient Cyprus, a river in Asia, rises near 41° N. lat. and flows southward and eastward for 450 miles, on the eastern declivity of the mountain-range which divides the waters falling into the Caspian Sea from those which run to the Black Sea. Its sources are a little south-west of the town of Ardaham, belonging to the Pashali, and the course of about fifteen miles in an eastern direction it leaves the Turkish empire and enters Russia, where it gradually turns to the north, and passes near the fortress of Akaltish or Akishkar. The river afterwards gradually descends more than 400 miles to the east, until it runs north-east, and again turns west to the southern declivity of Mount Caucasus, the Araki or Ararog, a rapid river, which brings down a great mass of

Kundry, not bearing any obvious relation to the other rea; and a 1-celled or incompletely 2-celled leafy and fruit, covered with locked prickles, and containing one seed. The leaves are alternate, simple, and hight stipules. The only remarkable product of the bar is Mathan root. [Krameria Triandra.]
water. Below this junction the Koor is a very considerable
river, and runs nearly south, passing the large town of
Tiflis. So far its course is bordered by high, steep, and
rocky banks, and traverses a hilly country. Below Tiflis it
enters the Plain of Kars, where its banks are alternately
low and high, the plain being considerably elevated above
to need its banks. The source of the river is the basin of
irrigating any part of it. In this plain several springs of
petroleum occur. The Koor runs through the plain mostly
in an east-south-eastern direction, and at its termination its
waters are increased by those of the Alazon, another powerful
river, descending from the southern declivity of Mount
Caucasus. After this junction the river traverses a hilly country
of some extent, passing through the narrow part called
Manga, and then enters that extensive plain which extends
along the coast from Baku to the Bay of Kurland. It
consists for about 120 miles, and along the course of the river
for about 150 miles. This extensive plain is broken by isolated
hills and numerous salt-marches. Some of the hills along
its northern border are mud-volcanoes, and in many places
springs of petroleum occur. Near the banks of the Koor
the country is subject to inundations, and overgrown with
rushes to a considerable distance. The districts nearest the
sea-coast have a soil impregnated either with salt or
petroleum, and are completely sterile, such as the Marjan desert;
but towards the hills and mountains which surround the plain
the soil is tolerably fertile. About 70 miles from its mouth the
Koor receives the Aras. [Aras.] After its junction with the Aras the Koor becomes navigable for modern vessels to
a size of about 140 yards wide. About 20 miles from the sea
the river divides into several branches, of which the outermost
are the largest. On the left main branch is the town of Salian, a collection of villages rather than a populous place, but healthy; it consists of a pound,
represented by fishery which is carried on by the inhabitants in
the river, and especially at its mouth. The fish taken here are
the same species which are caught at Astrakan. The delta of the Koor projects several miles into the Caspian Sea. The whole course of the river is about 560 miles.

(From Reinegg's and Marshal Biberstein's Description of Mount Caucasus.)

KURDISTAN. [Courland.] KURILE ISLANDS, extend from Cape Lapotka, the southern extremity of the peninsula of Kamchatka, in a somewhat curved line, to Cape Broughton, the north-eastern extremity of the island of Yesso. Some geographical
we consider the last-mentioned island as one of the Kuriles. They are twenty-five in number, besides nu-
merous rocks, and are all of volcanic origin, consisting of high masses of lava. Ten active volcanoes are known to exist on the nineteen northern islands. The vegetation is scarce near the Kurile Islands. There are almost no
but the southern islands are more fertile, especially Kunshir and Iturup, on which the Japanese have settled. The remainder are claimed by the Russians as an appendage to
Kamchatka, and they have established a settlement on Unasho, for the purpose of protecting the numerous
wild animals, especially bears, which are found there. The natives are partly Kamchadales and partly Ainus, a tribe which seems to belong to the same race as the
Japanese. Both tribes live on the produce of the chase, or rather of their fisheries. The Japanese have introduced
agriculture into the islands which have been settled by them.

KURKLAND, IN TOWN. KURSK, a large government of European Russia, lies between
50° 20' and 55° 26' N. lat. and 33° 40' and 38° 20'E. long. It is bounded on the north by Orel, on the east by
Voronez, on the south and south-west by Sloobsdsk-Ukraine, and
on the north-west by Tschernigov. Its area is 14,720 square miles.
The extreme breadth is 150, and its extreme length 2300
miles. The surface of the province is undulating. It
contains no mountains, but is traversed by many small eminences. There are no large rivers or large lakes, nor are the forests extensive. The soil is fertile, and the country populous, and covered with villages. The soil ge-
nerally consists of a rich mould, of sufficient depth, over a thick
clayey or loamy bottom; sand or stiff clay occurs but rarely,
and heath and moor still more rarely. The hills consist of clay, slate, and limestone, and chalk. One of the
is the Donets, which, after being joined by the Oskol, Ulo-
cha, and other rivers, flows into Sloobsdsk-Ukraine, where it joins the
Don. Neither the Donets nor any of the other
rivers, of which there are 13 large and 495 smaller, is navigable.
The Sem, or Seim, runs into the Donets, and consequently
belongs to the basin of the Don. Among the
rivers that join it is the Svara, which comes from Orel and
has many ruins and tumuli on its banks. The streams are
not frozen over till the first days of November; the ice begins to
form from ice at the beginning of March. In some parts the tapeworm is endemic among
the people, and the liver-fluke in the cattle. The cow
occasionally suffers from blight.

Kursk is one of the most fertile provinces of the empire,
and in Great Russia at least is next to Orel in the abun-
dance of its harvests. The soil is so rich that it needs no
manuring. When it is exhausted, it is suffered to lie fallow
for three or four years. The system of agriculture is to
plough, as there is no great number of tills, but to use
rarely, but the grain is deposited in pits in the ground, where
it may be preserved for six or ten years, only covered with
sods or boards. The commonest kinds of grain and
produce are:—winter rye, which yields from seven to
nine fold; winter wheat, from three to six fold; barley,
from seven to twelve fold; oats, from eight to nine fold;
peas, from five to seven fold; buck-wheat, from two to five fold;
millet, from eight to forty fold; poppy, from twenty to forty fold. The other products are chiefly hemp and
tobacco, and occasionally hemp is very successful. All the vegetables usual in Germany are cul-
verted and thrive well: near the capital and on the estates
the nobility, the more delicate vegetables are cultivated, and
hops sufficient for consumption are found in most garden-
places. The trade has increased, and is now extremely
scarce in all pears, except the wild sort, which is preserved
There is an abundance of hazel-nuts and wild berries: meleas
and water-melons are grown in the open fields. There is some
import of small coppices in made of tobacco, but great numbers
are kept for consumption in any, and all must at least import timbre
for building. In some they are obliged to use straw as
fuel for the crown forests cover an area of
only 330 square miles. There are few beasts of the chase.

The breeding of cattle is a
sufficiently, and but great numbers are kept in the fur of which is inferior quality. Hares, bustards,
partridges, and quails abound. The breeding of cattle is
indeed subsidiary to agriculture, but is carried on very ex-
tensively. The horses are of the Russian breed, but nearly
equal to those of the Carpathian lands; their wool is indifferent. Merinos do not thrive. The
inhabitants keep numbers of swine and domestic poultry,
and so many becs, that honey and wax are articles of
exportation. There is scarcely any fish. The minerals are
of large extent, (of which no use is made), limestone, flints, and
saltpetre.

Agriculture and the breeding of cattle are the most pro-
itable and the chief employments; very few hands are
engaged in manufactures. Such clothing as the countrymen
wants—shirts, stockings, and caps, are of his
own manufacture. He often makes his own household furniture
and farming implements, and builds his own house; so that
he scarcely needs the help of the mechanics, of whom however
in every village there are a number in the villages, to frequent the fairs. The manufactures are chiefly
the towns, the most industrious of which are Kursk and
Belgorod. The exports consist of the natural products of
the country, which are mostly sent by land to the Volga
and thence to Petersburg. Overjoyed attempts have been
made to send them by the Sem and the Donets to Odessa.

The population, which amounts to 1,720,000,
contains partly of Great, partly of Little Russians; most of the le-
test estates, and some of them are kept in
by a few strangers, but there is one entire village of gipsies, and
many unsettled families of that people who lead a nomadic
life. The head of the Greek church is the archbishop of
Kursk and Belgorod, whose diocese is of the third class, and
which has the principal

KURSK, the capital of the government, in 51° 43' 30" N. lat. and 36° 27' 45" E. long, is the residence of the
military governor of Kursk and Orel, of the civil governor and
authorities, and of the archbishop. It lies on the Tuskar, or Tuskara, where it is joined by the Kara, at the foot of a hill on which there is an old decayed fortress. The town is surrounded with sand banks, the stilt cumbriferous has been converted into walks and gardens. The streets are narrow and crooked, but they are paved. There are twelve stone and four wooden churches, two convents, an ancient seminary, a gymnastics hospital, and public buildings, and a hospital. The population is stated at 24,000. A very great annual fair is held on a heath at Koreaja Pustinja, a village in the circle of Kursk, about 12 miles from the town, which is visited by gypsies from all parts of Europe, where he became connected with the principal scholars of his age. In 1696 he published a critical dissertation, then in the state of the Taurus, and the pictures of this master, says that profound critic Dr. Waagen, are the most splendid proofs that the charm of a work of art lies far more in a profound and pure feeling of nature, in the knowledge and mastery of the means of representation which art supplies, than in the subject itself; for otherwise how would it be possible from such monotonous natural scenery as Holland affords, where the extensive green levels are broken only by single trees and ordinary houses, and intersected by canals, to produce such attractive variety as their pictures offer? How could it happen that so many pictures, even of eminent masters, such as J. Both and Pynacker, who represent the rich and varied scenery of Italy, have less power to touch our feelings than those of Kuyk, Ruysdael, and Hobema? In elevation of conception, knowledge of aerial perspective, with the greatest glow and warmth of the serene atmosphere, Kuyk stands unrivalled, and may justly be called the Dutch Claude. In the impartial breadth and freedom of execution, he greatly resembles Rembrandt. The art of the cattlers, of the cattle-painters, all kinds of which he represented with equal truth and fidelity, he likewise painted landscapes, properly so called, and sea-pieces. He excelled in every thing that he attempted; and yet, it is remarkable that his art has been comparatively little known abroad. Scarcely anything is known of the circumstances of his life; even of the year of his death we can find no record. Kuyk's works were so low in value, that a beautiful picture of his, for which Sir Robert Peck paid 400 guineas, was bought at Hovm, in Holland, some years ago, for one shilling English. He was a great favourite in England, and it is here that his finest works are found, chiefly in the National Bridgewater, Grosvenor, and Dulwich Galleries, in the collections of Sir Robert Peck, Lord Yarborough, the duke of Bedford, the marquis of Bute, his late Majesty George IV., and the late Sir Abraham Hume.

KYANITE, CYANITE, DIISTHENE, SAPPARRE. This mineral occurs in crystallized and massive. Primary form a doubly oblique prism. Cleavage parallel to the faces of the primary form. Fracture uneven. Hardness of the sharp portions sufficient to scratch glass. Colour white, yellow, and various shades of blue and green. Streak white. Lustre vitreous, pearly. Transparent; translucent. Specific gravity 3.6.

By the blow-pipe insufible, and merely becomes white even in a very strong fire; with borax readily dissolves into a colourless transparent glass.

KUTCH. [Cutch; Hindustan.]

KUTEERA, or KATIRA, a kind of gum, considered in India by the native practitioners of medicine to be a substitute for Tragacanth. Indeed, they consider it to be the true Tragacanth, which is described by Avicenna under the name Kuteera in the original Arabic, while the latter name is called Karda, and its gum Dragacanth. The Kuteera gum a good deal resembles Traga- chan in appearance, but does not in other respects correspond with that gum, according to the experiments which have been made on it in Europe. It has been described as a substitute under the name Kuteera (Pharmac. P. 589), which Guibourt says is the same as his Gomme de Basse. Dr. Roxburgh states that Sterculia urens yields a gum not unlike Tragacanth, and has been sent to London such; but the artists, who use that gum, did not think it worth their while to ascertain that the water in which it was kept the green branches for examination became thick, and as a clear glutinous jelly, while the bark was exceedingly urgent. (Pl. Ind., p. 111.) Dr. Royia, on the contrary, says that Sterculia urens is about the middle of the five segments, each bearing four another fasciated together at the apex. The trees are moderate sized, with alternate five-nerved, somewhat five lobed leaves. The flowers are white and panicked. K. calcicarpa, having the extreme of the petals, is called chaus-pattes, or

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yses, which is so highly ornamental on the lower mountains of India, with its large and rich-coloured yellow flowers.

KYYP, or CVYP, ALBERT, was the son and disciple of Jacob Geruzhe Kuyk, an eminent landscape painter of Dort, and a pupil of Abraham Bloemart. Jacob's works, chiefly views from nature in the environs of Dort, were highly and justly valued, and his memory was held in esteem at Dort for having founded in 1642 the Academy of Painting of St. Luke, and with several master-painters, among them Hasselt, Corn. Tegelberg, and J. Grief. His son Albert was born at Dort in 1606. Though his father's disciple, his manner is very different, and he embraced a wider and finer variety of subjects. 'The pictures of this master,' says that profound critic Dr. Waagen, are the most splendid proofs that the charm of a work of art lies far more in a profound and pure feeling of nature, in the knowledge and mastery of the means of representation which art supplies, than in the subject itself; for otherwise how would it be possible from such monotonous natural scenery as Holland affords, where the extensive green levels are broken only by single trees and ordinary houses, and intersected by canals, to produce such attractive variety as their pictures offer? How could it happen that so many pictures, even of eminent masters, such as J. Both and Pynacker, who represent the rich and varied scenery of Italy, have less power to touch our feelings than those of Kuyk, Ruysdael, and Hobema? In elevation of conception, knowledge of aerial perspective, with the greatest glow and warmth of the serene atmosphere, Kuyk stands unrivalled, and may justly be called the Dutch Claude. In the impartial breadth and freedom of execution, he greatly resembles Rembrandt. The art of the cattle-painters, all kinds of which he represented with equal truth and fidelity, he likewise painted landscapes, properly so called, and sea-pieces. He excelled in every thing that he attempted; and yet, it is remarkable that his art has been comparatively little known abroad. Scarcely anything is known of the circumstances of his life; even of the year of his death we can find no record. Kuyk's works were so low in value, that a beautiful picture of his, for which Sir Robert Peck paid 400 guineas, was bought at Hovm, in Holland, some years ago, for one shilling English. He was a great favourite in England, and it is here that his finest works are found, chiefly in the National Bridgewater, Grosvenor, and Dulwich Galleries, in the collections of Sir Robert Peck, Lord Yarborough, the duke of Bedford, the marquis of Bute, his late Majesty George IV., and the late Sir Abraham Hume.
four-leaved, by the natures of India. Like the greater portion of the family to which it belongs, this genus abounds in a bland mealtiage, for which its bark is employed in cleaning sugar in the same way that Guazumias ulmi- folia, belonging to the same family, is in the West Indies.

Dr. Roxburgh, in establishing this genus, says, I have ventured to give it the above name in memory of the late Colonel Robert Yeo, of Bengal, whose attachment to botany and horticulture induced him to retire from the high rank he held in the army, to have more leisure to attend to his favourite study, to the advancement of every object which had the good of his fellow-creatures in view, and to the establishment of the Honorable East India Company's botanic garden at Calcutta, where he was particularly suc- tive to the introduction of useful plants, and to their use dispersed over every part of the world for the good of man in kind in general.

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L.

is a liquid formed at that part of the palate which is near the teeth. It is therefore allied at once to the adjoining liquids r and n, and to the palato-dental consonants. The various forms which the letter has assumed may be considered in ALPHABET. The interchanges to which it is liable are as follows:

1. L is interchangeable with r. Hence from the Greek or rather Latin apopoto, epopota, the French have derived contrat, aptire, epitre, aptire. Again, in Latin, while from r, a stream, rivulet, living near the same stream, and from r, a stream, and after some age, are derived: for the name palata and familia lead to the adjectives populari, familari, belonging to the same people, or the same family.

2. These last words will it be observed already possessed an r. In the same way the well-known town on the African coast has been called at different times Algiers and Argel. The Spanish coronel corresponds to our colonel. Caralis, in corinidia, is now Cagliari. Salamaca was called in Latin Salamantica and Hermanciana.

3. L with n as Barcino (omnis), Barcelona; Ruscino, Rovigo; Bonnian, Bologna or Boulagna; Nebrisia, Neresia; ursevia, from timero or tinerio, Lat. timere; ausus and bellus in Latin, bartus and bellus in Greek; alascia, alascia; nisium, anima in Lat., alma.

4. Again, n, as St. Angers, St. Nizier is preceded by gridiron, meaning soot, and the English title admiral is derived from the Spanish amirante. But see D, No. 4. L is also interchangeable with t. (See T.)

5. M is the nasal m. Examples of this abound in the French pronunciation of the l moulé. Note that the French bid donors is derived without much alteration of sound the English billiards. It is somewhat strange that the English name Villiers and the French ville, which are no doubt of the same origin, should be pronounced so differently that the first writers always and omit sound it, the second gives an t to the ear and none to the sound. This change prevails between the Greek and Latin languages, as velo and folio, a leaf; aleo and alio; translated as Anglorum, the Spaniards; and, gridiron, meaning soot; and the English title admiral is derived from the Spanish amirante. But see D, No. 4. L is also interchangeable with t. (See T.)

6. L disappearing. Not very dissimilar is the Italian interchange of pl, cl, fl, with pl, cli, fl; as from pieno, full; piano, flat or low, piano; Piazzina, Piazzena; clari, clear; chiaro, bright, chiaro; clareare, to call, chiaure; and flor, a flower, flore; fliuctu, a wave, fliuto; Florentia, once Fiorenza, now Firenze, the existing name of Florence.

This loss of an l after a consonant appears in other languages. The German flasen, to fly, has for its chief element corresponding to the Latin lug. In the same language and flasen both mean to whisper; flächich and flisch both mean a wing; fließen corresponds to the English words blank and wink. The word dresch, thrjeid, is derived from drei and fisch. Again the Greek ιπό and Latin somno, sopor, have sop for the radical syllable. The Gothic in-sweop-an, the same root has the form sweop, in German schlaf, and in English sleep. Lastly, the thin claren, as St. Auger, St. Giles of the same origin, is revealed by the various forms of suavi, sweet, appear in human in the form susto, and in English as shut and shad.

7. L with n, particularly after an a. Alhena, a town, a town; Alaghna, pity (used by ecclesiastical writers to only charitable gifts), Ital. timosia, Fr. amienne, Eng. Lat.; altani, an altar, Fr. autel; Lat. altaper-an, Ital. aul; fr. ovum; Lat. suina, Fr. suine. The French also restore the pronoun and article d la, le, les, to us and aus.

8. Many words beginning with an L once had other consonants before the l- as in Latin, loeo, a place, liti, a suit, lato, broad, were once preceded by st—thus, stilo, stili, stato. This explains how lato in Latin is the participle of toll. It must once have been lato, corresponding to the Greek forms of the same root, viz. ἁλατος, ἄλατος, as well as solia. Again the English ligueur is a corruption from the word gneho, rhesia, sweet-root. To this head perhaps belongs the Welsh sound of words beginning with ll, as for example all the places beginning with Llan, which is pronounced by some as thlun, by others as flun. Perhaps luna and simm were kindred.

9. L is very apt to appear in a root, sometimes before a vowel, sometimes after one, as in the Greek words σάκος, σάκαλος, and σαμάλω. Here this slipping occurs after a sound like l, the l is apt to be converted into an r. Thus the Greek σαλικός, poke, is in Latin Larrick (compare the phrase schrutari ignem, to poke the fire). So καλτρω and κρυπτό are of the same origin; σάλικας and the Latin crualis, crulivs and crus; celebr and creder.

LA, in music, the name given in England, Italy, and France, to the sixth of the syllables used in solmization [SOLMIZATION], and by the two latter countries to the note called a by the Germans and English.

LAALAND, LAALAND, or LOLLAND, a bishopric of the kingdom of Denmark, comprises the islands of Laaland and Falster, the united area of which is 660 square miles, and the population 64,000. The island of Laaland is situated in the Baltic, between 54° 36' and 54° 57' N. lat., and 11° 16' and 11° 45' E. long.; its length from west to east is about 60 miles, its breadth 20 miles, and its area is 460 square miles. The population, which is about 45,000 inhabitants, is less than the island, which is extremely fertile, might support; but the climate is unhealthy and the water bad. The country is low, flat, and has much marsh ground. The soil, as already observed, is extremely fertile, producing all kinds of corn, pulse, flax, hops, potatoes, fruit, timber, &c. for exportation. The inhabitants have great numbers of horned cattle, and fish are very abundant. There are four towns in the island: Maribo, situated on a lake, which, though it has not 1000 inhabitants, is considered as the capital; Naskow, with 2000 inhabitants, which has a good harbour and considerable trade; Nyestadt, with 800 inhabitants, who follow the seal fishery; and Koldby, with 800 inhabitants, on a bare island in the Baltic, separated from the mainland, from which is the passage to Femern and to Heiligenhafen in Holstein.

LABARRAQUE'S DISINFECTING LIQUIDS.

Solution for chlorine of lime and of chlorine of soda. [Fumigation]

LABEO (Cuvier), a genus of fishes belonging to the Cyprinidae. The species of this genus resemble the true carps in having the dorsal fin long, but they do not possess the strong spine of the anal and dorsal fins. The lips are very thick and fleshy, and more or less crenulated. There are no cirri. An illustration of this genus will be found in the Cyprinus nitidus of Geoffroy St. Hilaire. (See Poissons du Nil, pl. xi, f. 2.) The Cyprinus fimbriatus of Bloch, Schinz, p. 441, sp. 24, and the Catostomus cyprinns of Lesueur, also belong to the genus Labeo, which has no representative in the European seas.

LABEO, C. ANTISTIUS. [Justinius's Legislation]
and legumes that the species are valued and cultivated in hot countries such as India, Egypt, and the West India Islands, as well as in China. In Indian **Lablab vulgaris** and **cylindraceus** are chiefly cultivated in the rainy season in gardens, and may be considered the analogues of the French and kidney beans of European gardens.

LABORATORY, the room in which chemical operations are performed. The requisites for the proper arrangement of and the necessary instruments for a laboratory may be seen at length in Professor Ferguson's 'Chemical Manipulation.'

LABORDE, JEAN-BENJAMIN, a voluminous writer on the history of music, who evinces extensive knowledge and most industry than any method, was born in Paris in 1727 of a rich family, and received a most liberal education, including music, which he studied under the celebrated Rameau. He was intended for the financial department of government, but his inclination prompted him to seek admission to the gay court of Louis XV., to whom he was appointed premier valet de chambre, and soon becoming the favourite and confidant of that prince, was, as a matter of course, led into great extravagance and dissipation. But a passion for music, which by some sour moralists of the last age was supposed to betray men of leisure into injurious habits, saved him from much of the evil that most likely would otherwise have ensued from his connection with a profligate monarch and a vicious court: he composed several operas, and these, though possessing little merit, proved successful, and occupied time which, in all probability, would have been devoted to less innocent pleasures. On the death of Louis, in 1774, M. Laborde resigned his office, married, and entered into a life of comparative tranquillity. He was one of the 'compagnons de la poste,' devoted to his spare hours to study, and, in 1780, published his 'Essai sur la Musique Ancienne et Moderne,' in four 4to. volumes, a splendid work, got up at vast expense, embellished by a great number of remarkably well-executed engravings, and illustrated by numerous examples of French national music in various forms. This contains an abundance of information, drawn with great labour from authentic sources, and though exhibiting occasional prejudices, and so desultory that it could not have been entitled to the Second Edition in a work, rather than an Essay, yet it has supplied with facts and materials writers—some of them of no mean reputation—who have not had the candour to acknowledge the slightest obligation.

The French revolution brought in its train the ruin of M. Laborde. A *farmer-general* could expect no favor from those whom the new order of things had placed in power; he therefore withdrew into the country, and lived concealed till an unlucky indiscretion of a person immediately connected with him made his retreat known. He was convicted to Paris and committed to prison, where he might have remained, among others, till one of those changes in the government to which so many owed their lives had liberated him; but immediately, and against the advice of his friends, he pressed for trial, was condemned, and perished on the scaffold on the 26th of July, 1794, just five days before the fall of Robespierre and his sanguinary colleagues.

The great pecuniary resources of M. Laborde, together with his activity and indefatigable industry, enabled him to publish, in a sumptuous manner, many original works; also some translations from the English. Among the former are: an 'Essai sur l'Histoire Chronologique de plus de 80 Peuples de l'Antiquité,' 2 vols., in 4to; and *Description générale et particulière de la France,* in folio; and *Tableaux Topographiques, Geographiques, Historiques, &c., de la Suise:* 4 vols., in folio.

LABOUR. [Wages; Wealth.]

LABOUR, PAYS DE. [Basques, Paysdes; Gueyenne and Gasconne.]

LABRAAX, *Labrax.* LABRACE. *Labrador Felspar,* occurs in rolled or imbedded crystalline masses. Cleavage parallel to the planes of a doubly-oblique prism; fracture uneven, conchoidal; hardness 2 1/2 to 6 1/2; scratches phosphate of lime; and is scratched by quartz; colour white, grey, richly indescribable; lustre vitreous; translucent; specific gravity 2 69 to 2 76.

When powdered and heated in muriatic acid it gelatinizes; on charcoal before the blowpipe, fuses into a compact glass, with a brilliant fracture.

LABRAX (Cuvier), a genus of fishes of the section Acanthopterygii and family Percidae. The fishes of this genus are closely allied to the true Perches, but may be distinguished by the opercular bones being covered with scale, the absence of denticulations on the suborbital and inter-opercular bones, the operculum being terminaded by two spines, and likewise by the tongue being almost entirely covered with minute and closely set teeth. There are two dorsal fins.

The ***Labrax lupus*** (Cuvier), a fish commonly known in this country by the name of the *Base,* and sometimes called the *Sea-dace,* is abundant in the Mediterranean; its flesh being excellent food, it has been long known, and called by the Romans *Lupas,* and by the Greeks *Labrax.

The *Base* is not unfrequently met with on our open shores: it is generally from about twelve to eighteen inches in length, but sometimes attains a much larger size. The upper parts of the head and body are dusky-blue, passing into silvery-white on the sides and belly; the fins are pale-brown. In form it very much resembles the perch, and, like that fish, it has two distinct dorsal fins, the rays of the first being spinous, and those of the second being flexible; the scales are of moderate size.

The *Rock-fish* or *Striped Base* of the United States (*Labrax lineatus* of Cuvier and Valence,) also belongs to the present genus, and indeed very closely resembles the *L. lupus* in form, but attains a larger size, and is adorned with seven or eight longitudinal black lines on a silvery-ground colour. There is also a second American species of *Base,* the *Labrax marmoratus* of Cuvier and Valenciennes, which differs from the former in having no black lines on the side of the body, and in being of a smaller size and deeper and shorter form.

Head of *Labrax Lupus.*
times pointed or laminated, and generally very strong. The intestinal canal is without ceca, or when these appendages are present they are of small size, and there is a simple and strong natory bladder. The following genera are contained in this family:—Labrus proper, the characters of which are: opercula and preopercula without spines or dentations; cheek and operculum covered with scales; lateral line straight, or nearly so. Of this genus, the species of which are called Wrasses, we have several examples on the British coast. The Ballan Wrasse (Labrus maculatus, Bloch), is not unfrequently met with on various parts of our coast; it is about eighteen inches long, of a red colour above, pale orange beneath, and adorned with bluish green oval spots; the fins and tail are green, with a few red spots, the dorsal fin is spotted at the base. The length of the head compared to the whole length of the fish is as one to four, and the depth of the body is equal to the length of the head. The fin-rays are: dorsal, 20 + 11; pectoral, 13; ventral, 1 + 5; anal, 3 + 9; caudal, 13. Besides this species we have the Green-streaked Wrasse (Labrus lineatus), the Blue-stripped Wrasse (Labrus variatus, Gmel., Linn.), the Sea-wife (Labrus vetula, Bloch), the Red Wrasse (Labrus carneus, Bloch), the Comber Wrasse (Labrus comber, Gmel., Linn.), all of which are described in Mr. Yarrell’s “History of British Fishes.”

Genus Chelinus, Lacép.—The species of this genus differ only from the true Labri in having the lateral line interrupted opposite the end of the dorsal fin, and commencing again a little below the break. The scales in the tail are large, and extend on the fin. These fishes inhabit the Indian Ocean, and are very beautiful in colouring.

Genus Lachnoloma, Cuv., may be thus characterized: anterior spines of the dorsal fin with long flexible filaments; pharyngeal furnished with a villous membrane; with round flat teeth on the hinder part. The known species are from America.

Genus Julis, Cuvier, is distinguished from Labrus proper by the head being evenly smooth and without scales, and the lateral line being suddenly bent opposite the end of the dorsal fin.

Julis Mediterraneus, Risso (Julis vulgaris, Cuvier), the Rainbow Wrasse, has been caught off the British coast; but it appears here to be scarce, though a well known fish in the Mediterranean. It is of a slender and elongated form, and remarkable for the elegant distribution of its colours, which change according to the light and position: on each side of the body is a broad dentated stripe, extending from the head nearly to the tail, of a silvery and fulvous colour. The fin-rays are:—dorsal, 9 + 13; anal, 2 + 13; caudal, 13; pectoral, 12; and ventral, 1 + 5. A specimen described by Donovan, which exceeded seven inches in length, was caught off the coast of Cornwall, and is the only recorded instance of the occurrence of the species on the British coast.

The species of the genus Acanthodes of Cuvier differ from those of the genus Julis in having two flat teeth in each jaw, which project and curve outwards.

The genus Crenilabrus of Cuvier has the general characters of Labrus proper, but the margin of the preoperculum is dentated.

Crenilabrus Tina, Flem., called the ‘Gilt-head.’* Connor, &c., is found on many parts of our coast, and indeed is one of the commonest species of the family Labridae we possess; it is from eight to ten inches in length; the upper parts are marked with alternate red and bluish longitudinal lines; below the lateral line the colour is bluish-green, spotted with dull red; head brownish-red, with undulating lines of an azure-blue colour; dorsal, caudal, and ventral fins, bluish-green, spotted, and lined with red; pectorals pale and immaculate; greatest depth of the body very nearly one-third of the entire length.

The works on British fishes contain three other species of the present genus. The Goldsainy (Crenilabrus cornucicis, Risso), the Gibbous Wrasse (Crenilabrus gibbosus, Flem.), and the Scale-rayed Wrasse (Crenilabrus luscus, Yarrell).

In the genus Coris, Cuvier, we find the same characters as in Crenilabrus; but the mouth is protractile, though not in so great a degree as in the next genus, Epibulus (Cuvier), where the species have the power of extending the mouth to a great degree: in the fishes of the last-mentioned genus the head and body are covered with large scales, which extend both on the caudal and anal fins; the lateral line is interrupted, and there are two long conical teeth in each jaw, behind which the teeth are comparatively small and blunt.

The only species known (Epibulus insidiator) inhabits the Indian Ocean. Clepticus (Cuvier), which is the next genus in succession, has for its distinguishing characters—the snout small and cylindrical, which may be suddenly protruded like that of Epibulus, but which is not so long as the head: the teeth are minute, the body oblong, and the head obtuse; the lateral line is continuous, and the dorsal and anal fins are almost entirely enveloped by scales. But one species is known (the C. genizara, Cuv.), and this is from the Antilles.

In the genus Gomphus (Lacépède), the muzzle is remarkably long and slender, owing to the prolongation of the maxillary bones; the head is smooth, as in Julis. The species inhabit the Indian Ocean.

Gomphus viridis, Bennett,* is found off the coast of Ceylon, and is of a dark green colour; the pectoral fin is marked with a black streak.

* See Bennett’s Fishes of Ceylon.

Xyrichthys (Cuvier).—The fishes of this genus are of a compressed form, and have the profile of the head high and nearly vertical: the body is covered with large scales; the lateral line is interrupted; the jaws are furnished with a range of conical teeth, of which those in the centre are the longest; the pharynx is beset with hemispherical teeth. The compressed form and almost vertical profile of the head caused the older authors to arrange these fishes with the Coryphamnæ. The Xyrichthys novacula (Coryphamna novacula, L.), or Razor-fish of the Mediterranean, affords an example of this genus: it is of a red colour, irregularly striped with blue.
Genus Chromis, Cuvier.—With the thick lips, protomelane intermandibulares, pharyngeal bones, filaments to the dorsal spines, and the general appearance of a Labrus, those fishes have the teeth in both jaws and on the pharyngeal slender and thickly set, or, as Cuvier describes them, en carde, but in front of these there is a range of conical teeth. The vertical fins are filamentous. The ventral fins are often prolonged into long filaments. The lateral line is interrupted. A small species of this genus, which is of a chestnut-brown colour, is common in the Mediterranean; it is the Spatias crocmis, Lin.: another species is found in the Nile, the Labrus niloticus, Hassels, &c. The genus Cyclea (Bloch, Schm.) differs from Chromis in having the body more elongated, and in having in the whole of the teeth the yellow slender and thickly set, like the pile on velvet, and forming a broad band: it contains numerous species. The genus Pscilopa (Cuvier) differs from Chromis in having the head compressed, the eyes placed near to each other, and the ventral fins much elongated.

Malaconthus, Cuvier.—In this genus there are the general characters of Labrus; the maxillary teeth are nearly the same, but the pharyngeal teeth are en carde, as in Chromis. The body is elongated, the lateral line continuous, the operculum is produced posteriorly into a little spine, and the long dorsal fin has but a small number of slender and flexible spines in front. One species is found in the Antilles, which is of a yellowish colour with irregular transverse violet stripes and a crescent-shaped tail: it is the Coropherna plumieri of Lacépède.

Genus Scarus, Linn.—The species of this genus, commonly known by the name of Parrot-fishes, are remarkable for the convex and rounded form of the jaws, which are bent with several series of scale-like teeth, which are so soldered together, that they usually appear to form solid masses of enamel: these teeth succeed each other from behind forwards; those at the base, being the most recent in formation, in time replace those above, and themselves form the cutting edge. When alive, the fleshly lips nearly cover the teeth. In general form and in the large scales with which the body is covered the Parrot-fishes resemble the true Labrus; their pharyngeal, like them, are furnished with teeth, but they consist of transverse laminae.

These fishes are chiefly confined to the seas of hot climates, and are of very brilliant colours, which last circumstance, combined with a fancied resemblance between the mouth and the back of a parrot, has given rise to the name of Parrot-fishes. Some of these species present-shaped tail, and of these there are a few in which the forehead is very gibbous; in others, the tail is truncated. Cuvier has separated from the Parrot-fishes, under the generic name Calloscomus, those in which the lateral teeth of the upper jaw are square and pointed, and in which there is an inferior range of much smaller teeth in the same jaw; and lastly, M. Cuvier has established the genus Odax for the reception of those Labroid fishes which approach the genus Labrus in having the lips thick and fleshly, and the lateral line continuous, and the jaws composed like those of Scarus, but which are however flat and not gibbous, and are covered by the lips; the pharyngeal teeth are as in Labrus. The Scarus pulvis of Bloch (Schneider) belongs to this genus; the same is found off the coast of New Zealand, of a blackish brown colour, and furnished with small scales.

LARBOIDES. [Laribe.]
LABRUS. [Laride.]
LA BRUYÈRE. [Bruitre, La.]
LABURNUM. the common name of the European trees named by botanists Cytisus alpinus and C. laburnum. It is a native of the Alps of Europe, and is well known in gardens for the beauty of its pendulous racemes of yellow flowers. The seeds of Laburnum contain a poisonous substance called Cytisine; and the wood, which is olive-green, hard, and compact, is occasionally used by the turner for ornamental work.

LABYRINTH. [Casse; Fauk.]

LA CAILLE, NICHOLAS LOUIS DE. The following account is almost entirely from Delambre, either from the memoir by him inserted in the "Biographie Universelle," by Cuvier, and in his "Hist. de l'Astron.," or from the "Reliures du C. de Bruyere.

There are two dègues, one by Grandjean de Fouchy, the other by G. Broter, prefixed to the "Cabinet Astron." As Delambre knew these dègues, we have not thought it necessary to look into them.

La Caille was born at Rumigny, near Rosoy, in Thiérache, March 15, 1713. His father, a retired military officer, was in the service of the duchess of Vendome, and was himself attached to science, and endeavoured to cultivate the same taste in his son. He did so; however while the latter was at the college of Lisieux, and his son was enabled to continue his studies by the generosity of the duke of Bourbon. He chose theology as his profession; but in passing his first examinations he showed so much frankness in his answer to some questions proposed by a doctor of the old school, that this examiner would have refused him his degree but for the remonstrances of the rest. This incident discouraged him, and he remained content with his theology, till he was sent to abbé, beyond the Alps, beyond the Alps;

He had previously turned his attention to astronomy under great disadvantages; and upon his renunciation of theology, Fouchy above mentioned, who relates that his knowledge of astronomy was above all comprehension in so young a person, even in his own person, was employed at the Observatory. In the following year, and in conjunction with Maraldi, he made a survey of part of the coast of France, where the talent which he showed occasioned his being employed in the verification of the arc of the meridian. This operation (an exercise, which was associated) commenced at the beginning of May, 1728, and before the end of the year he had completed the triangulation from Paris to Perpignan, which had measured three times, made the requisite astronomical observations at thirteenth day, and had taken a prominence of the meridian. This result of this tremendous labour was the complete establishment of the gradual increase of the degree in going from the equator to the poles, which, though long known to be theoretically true, had not previously been confirmed by measurement. In the mean while he had been appointed maître de mathématiques in the Marzarin College, the duties of which he fulfilled with care, and for which he published treatises on geometry, mechanics, astronomy, and optics. He was also employed in the calculation of ephemerides, and in that epochal work, he was occupied in the "Arboris Clavicula," or "Arboris Dux." In 1746 an observatory was constructed for him at his college, and he began observation on a large scale. The transit instrument being then but little used in France (Cassini), he had no means of judging of its value; so that with old methods and old instruments he continued his career for fourteen years. In 1751 he made his celebrated voyage to the Cape of Good Hope, where he remained four years or something less. His object was to form a new table of the right ascensions of the fixed stars, and the results have been in use. He determined the places of about ten thousand stars, and grouped them in constellations; measured a degree of the meridian at the Cape, and made a survey of the Mauritius and island of Bourbon, where he did his expenses with those of de Tour, who accompanied him, all instruments included, ten thousand francs; and so accurately did he keep his accounts, that he was able to explain his expenditures to a sou; it was 944 livres, 5 sous, and he trusted balance, in spite of the increase of the officers of the Treasury to receive it. He returned to Paris in 1754, and occupied himself in the preparation of his "Fundamentals Astronomic," for the publication of which he engaged to furnish a new index, fuller with almanac for ten years. He began to use the transit instrument, but with so much doubt of its accuracy, and consequent repetition of observations, that, according to Delambre, the secondary stars observed...
La Caille was an astronomer whose observations will have the highest value as long as astronomy is cultivated, for he was, in truth, a superlative in original discovery. Lalande said of him that he alone had made more observations than all his contemporaries put together; which Delambre states would be no exaggeration, if spoken of the twenty-seven years during which he laboured. But with his utmost efforts was much increased by his extraordinary activity, industry, and honesty, yet his reputation was still more indebted to the genius which he displayed in producing exactness of the imperfect instruments. Delambre remarks that the repeating circles of Lenoir and Reichenbach have not been able to correct the latitude of the Observatory of Paris as determined by La Caille. He also says, having been called upon by singular conjunction of circumstances to go over and verify a great part of the labours of Sainte-Croix, was much surprised at the stars, made long researches on refraction, constructed new solar tables, measured the meridian of France, and had many hands for several years all the manuscripts of La Caille, I never followed him one step of his track without having the admiration of the public, always to the honour of French astronomy. Delambre says we have seen, a severe critic in all quarters, and never was much, if any, national bias in great questions: an error from his history is this. The writings published by La Caille are as follows:— 1754, Ephemerides; 1746, Logiques éléments d'Acoustique Géom. et Phys., reprinted in 1753, 1754, and in 1758, with notes by Lalande; translated into English by the Rev. John Biddulph, and published in 1751. On the Honours of the Academy, which appeared in 1748: 1750, Logiques éléments d'Optique, a work which maintained a long time, but only for want of a better: Avis aux Astronomes, &c., a pamphlet recommending the corresponding observations to be made in Europe, he was in the south: 1753, Observations made at the Cape of Good Hope, and Venus: 1753-1754, Ephemerides, on the model of which, according to Lalande, the Nautical Almanac was constructed: 1757, Fundamenta Astronomiae, a catalogue of 397 stars (northern), of which Delambre says at least more trouble than any other catalogue ever gave him: 1758, Tabula Solares, the best to the up time Delambre states: But the first work of La Caille (according to Delambre, admitted by Lalande) was an edition of, or commentary on the tract of Cotes, entitled Estimatio Errorum, &c., the attempt to apply the theory of probabilities to the determination of the most probable mean of observations. La Caille was an astronomer who made his own head supply deficiencies of his workman's hands. The posthumous works of his hands were as follows:— 1774, Ephemerides; containing also a catalogue of 820 stars, with a catalogue of 1942 principal stars, such catalogue is also in the Memoirs of the Academy for 1752.

LA CHATRE. [Chatre, L.A.]

LA CONDAMINE, CHARLES MARIE, was born at La Condamine, on the 29th of January, 1701. Upon leaving college he entered the army as a volunteer, and forthwith proceeded to make part in the siege of Rosas, where his intrepidity soon added to his reputation; but on the restoration of peace, finding the expectations of promotion which he had previously entertained not likely to be realised in the ordinary course of military profession, and in 1730 entered the Academy of Sciences as assistant-chemist ('adjoint-chemistes'). Shortly after this he embarked in an expedition to the Mediterranean, having for its object the exploring the coasts of Asia and Africa, and while absent visited Trous, Cyprus, and Jerusalem, and passed five months at Constantinople. Upon his return to Paris the Academy were busily occupied in discussing the arrangements for a voyage to China, to lay the equator for the purpose of measuring an arc of the meridian, with a view to the more accurate determination of the dimensions and figure of the earth. From the first mention of this project La Condamine directed his attention to every branch of the science, and caused the commission of his manuscripts to his friend Maraldi.

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Resin, insoluble in ether

Laccin

Cochinin

Rat-tail resin

Cochinelline coloured coverings of insects

Waxy tallow

Laccic acid

Yellow extract

Sap of potash, lime, iron, and bybary matter

Loss

Notwithstanding the seeming accuracy of the details of the above-mentioned analyses, it would appear that further experiments are still required to determine the nature of the lac; for Unverdorben has, since these analyses were published, arrived at results of his own investigation: 1st, laccin; 2nd, red colouring matter (Cochinelline); 3rd, resin soluble in alcohol, but not in ether; 4th, resinous looking matter, slightly soluble in cold alcohol; 5th, crystalline resin; 6th, uncrystallizable resin, soluble in alcohol and ether; but not in naphtha; 7th, wax; 8th, fat of cocous, not saponified, and some oleic and margaric acids.

Shell-lac is largely employed in the manufacture of sealing-wax; it answers this purpose better than any other resinous matter because it melts without charring, and consequently leaves no residue without dissolving, in alcohol either cold or hot; nor do ether or oils take it up. It is dissolved by concentrated sulphuric acid. Concentrated nitric acid, when heated, also dissolves it slowly, but in no way does the potash dissolve readily.

Laccic acid separates from solution in water, by spontaneous evaporation, in crystalline grums. It attains moisture from the air, does not precipitate either the salts of lime or barytes, but throws down those of mercury and lead; the peroxal of iron are precipitated white by it. With the alkalis and with lime it forms salts which are soluble in alcohol and in water, and are deliquescent.

Cochinelline, or the colouring matter of stick-lac, is similar to that of cochineal, is used for the same purposes, and yields a scarlet but little inferior to it.

Lac Dye and Lac Lake. Two preparations of lac which are manufactured in the East Indies, and used to a very considerable extent in scarlet dyeing; they appear to be prepared by distilling stick-lac in the alkali, as potash soda, and then adding a solution of alum; by this there is precipitated a mixture of the alumina of the alum and the resinous and colouring matter of the stick-lac. The lac dye is more the valuable of the two.

Trade. — The principal uses to which this article in its various forms is applied are for the making of sealing-wax, for varnishes, for jappaning, and for scarlet dyeing. The trade in lac has of late years become of some importance. The quantities imported, re-exported, and taken for home use respectively in each of the ten years from 1828 to 1837 were as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Re-exported</th>
<th>Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>1828</td>
<td>6,666 lbs.</td>
<td>66 lbs.</td>
</tr>
<tr>
<td>1829</td>
<td>6,666 lbs.</td>
<td>66 lbs.</td>
</tr>
<tr>
<td>1830</td>
<td>6,666 lbs.</td>
<td>66 lbs.</td>
</tr>
<tr>
<td>1831</td>
<td>6,666 lbs.</td>
<td>66 lbs.</td>
</tr>
<tr>
<td>1832</td>
<td>6,666 lbs.</td>
<td>66 lbs.</td>
</tr>
<tr>
<td>1833</td>
<td>6,666 lbs.</td>
<td>66 lbs.</td>
</tr>
<tr>
<td>1834</td>
<td>6,666 lbs.</td>
<td>66 lbs.</td>
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<tr>
<td>1835</td>
<td>6,666 lbs.</td>
<td>66 lbs.</td>
</tr>
<tr>
<td>1836</td>
<td>6,666 lbs.</td>
<td>66 lbs.</td>
</tr>
</tbody>
</table>

The import duty previous to 1832 was charged upon lac-dye at the rate of 5 per cent., and on shellac at the rate of 20 per cent. on the value, but in that year the rates were altered and reduced to the specific duty of 6d. per hundredweight upon both descriptions. The present price of lac-dye of fine quality is from 3s. to 4s. per pound, and of shellac from 6s. to 6s. 15d. per hundred-weight.

LACDIVE ISLANDS are situated in the Indian Ocean, opposite the coast of Malabar, between 10° and 15° N. lat. and 72° and 75° E. long. The inhabitants call themselves Lakadenee; deevh, in the corrupt Malabar dialect, which is spoken there, signifying island. They are a brown or yellow race, but otherwise undistinguished. The women wear silver ornaments, whose wages amounted to 2,500,000£. annually. The manufacture is carried on in and about Negombo, in the district of Trithy. The money cattle, or bedu, is a breed which is found only in this island of Unawatuna. Agriculture is the chief occupation, and the produce of vegetables, fruits, and other foodstuffs, as well as of gold and silver ores, is considerable. The manufacture of lac is carried on in the vicinity of Negombo, where the lakes are situated. The raw materials consist of the leaves of the lac tree, which are gathered in great quantities, and the sap is extracted by boiling in water, and the lac is then dried in the sun. The lac is then reduced to a fine powder, which is used for the manufacture of lac-dye and varnish. The lac-dye is used for the manufacture of lac-dye and varnish, and is also exported to the East Indies, where it is used for the manufacture of lac-dye and varnish.
as given, on the competent authority of Mr. William Felkin of Nottingham, as being equal to 27,919,063 square yards, the produce of 3,345 machines. This manufacture is still only in its infancy. Improvements, both as regards the manufacture proper and its application to domestic purposes, can be produced, are continually introduced, and there is little reason to doubt that in a comparatively short time machine-made lace will altogether take the place of that made by hand.

LACEDÉMONIANS. [SPARTA.]

LACÉPÈDE, BERNARD GERMAIN ETIENNE, DE LA VILLE, COMTE DE, a celebrated French naturalist, born at Agen, chief town of the department of Lot-et-Garonne, in the province of Aquitaine. His father, Jean Joseph Médard de la Ville, held a high legal appointment (lieutenant-general of the Sénéchaussée) at Agen, and was descended from an ancient and noble family. Young Laépédé lost his mother at an early age, and was brought up in a great measure of the care which he bore to her was doted upon by his father, who brought him up at home, and freely allowed him to cultivate a taste which he showed for reading, by letting him have free access to a good library. He thus acquired romantic notions and a generous unsuspicious disposition, which all the changes of a long and eventful life never effaced, and which sometimes led him into error, inducing him to believe improbable circumstances rather than doubt the veracity of an author. Among other books he read, he in a particular instance, was greatly influenced by the works of that remarkable writer, whom he henceforth took for his master and his model. W. Smiles. Although Laépédé's studies were chiefly in literature and science, he became a proficient; he also applied himself with ardour to the study of physics and natural philosophy, and formed with some of his young companions a juvenile academy, many members of which subsequently entered the followers of the academicians. These studies, and the application of electricity and magnetism, in the hands of Laépédé, most admirably surmounted, or at least counteracted, the defects of his mental formation, and contributed much to exempting him from the mischiefs of his own eccentricities. Having made some experiments on electricity, and detected, as he thought, some important facts and observations, he wrote a memoir on this subject, and sent it to Buffon, who returned him such a flattering answer, that on the 24th of May, 1788, Laépédé received his appointment as the naturalist to the Cabinet du Roi. He was at this time about twenty years of age, and wished to devote himself entirely to the pursuit of science and music, but his friends insisted on his following some profession, and accordingly he obtained a commission in the army. He got attached however to a regiment where he had nothing to do, and which he hardly saw, though it served for a nominal employment. At last, having been appointed to command an army, which was to publish an opera for the stage, which though favourably received at first, was not ultimately successful, and from this time he only followed this study for his private amusement.

In 1781 he published an essay on natural and artificial electricity, and in 1782 a treatise on physics, entitled 'Physique Générale et Particulière.' These works were full of ingenious hypothesis and clever reasoning, but the theories of electricity and magnetism, which they contained were not based on facts, and they did not meet with success. Buffon however, on whose model they were written, was so much pleased with them that he became from this time the intimate friend and instructor of Laépédé, who was now the first and favourite pupil of Buffon and Daumont. Buffon proposed to him to continue his 'Natural History,' and in 1785 offered him the appointment of curator and sub-demonstrator in the Cabinet du Roi. He gladly left the army and accepted this, though it was but a poor one compared to the one he received after Buffon's death, which took place in 1788. Cuvier says that 'Laépédé, by the action of his talent and genius, that interesting as it contains, was worthy of the immortal work of which it forms the continuation; it marks the change of ideas and progress of science which had taken place during the six years which had elapsed since the first appearance of the work.' M. Laépédé however had not the antipathy of his master to precise methods and nomenclature; he formed classes, orders, and genera, which he early characterized, as well as strictly defined many species: but his arrangement was, like that of Linnaeus, artificial and unphilosophical, founded only on external characters, without reference to internal organization. After the death of Buffon, when France became disturbed by the national convulsions of the Revolution, Laépédé took an active part in political affairs, having successfully invited, to fill the posts of president of Paris, commandant of the national guard, and deputy extraordinary for the town of Agen in the Legislative Assembly of 1791, of which he was elected president. With many others he got out of favour on the following year, and narrowly escaped destruction during the reign of terror, being obliged to secrete himself for some time. When the Jardin du Roi was converted by the Convention into a public school, and named the Museum of Natural History, he returned there, and in 1795 a new chair of zoology was created for him, in which he lectured on reptiles and fishes, with great success. In 1798 he brought out the first part of his 'Histoire Naturelle des Poissons,' which Cuvier pronounced to be a very good performance considering the disadvantages under which he laboured in getting specimens, and the imperfect knowledge of the organization of these animals at that time. In 1804 his 'Histoire Naturelle des Cétacés' was published, which he correctly estimated as the best of his writings. After this period he wrote no large work, though he contributed numerous memoirs to the 'Annales du Muséum,' the 'Mémoires de l'Académie des Sciences,' and other publications. A great deal of his time was spent in public business. In 1799 he was elected a member of the senate, and was made president in 1801. From 1803 till the Restoration he filled the office of grand chancellor of the Legion of Honour. He was a member of the Institute at the time of its formation, and afterwards of the Académie des Sciences. He died on the 6th of October, 1825. Cuvier says that he was always distinguished by excessive politeness and courteousness of manner, with which however he combined great kindness of heart, and that his works show him to have been a profound observer and an elegant writer. We here subjoin some of the titles of his principal works, but for a complete enumeration of his literary contributions we refer to Cuvier's 'Eloge,' where a good biographical memoir of Laépédé will be found:


LACERTA (the Lizard), a constellation of Herelius, surrounded by Andromeda, Cepheus, Cygnus, and Pegasus. 

LACERTIA, &c., or LACERTIANS. Under the family name of Lacertians Cuvier arranged:

1st. The Montes and their subdivisions, viz. the Monitors properly so called, including the Ouarans of the Arabs (Parnaeus), &c.; the Dragons (Crocidilius of Spix, Ada of Gray); and the Sauvegarded (Monitor of Fitzinger and Ameiva). 

2nd. The Lizards properly so called. This second group comprises, according to Cuvier, the genera Lacerta, Algyra, and Tachydromus.

M. Duméril and Bibron make the Varmiens, or Sauvage, Platyodons, and skirts.

ll. The Varmians, which immediately after the Crocodiles in their Erytologie. They allow that the Varmiens are nearly allied (on très grands rapports) to the Lacertians, as modified by them, and rest the distinction of the former family from the latter—first, on the presence in the latter of the head scales of Vol. XIII. — 3 M.
which cover the head; 2nd, on the form of the scales of the back and of the belly, and their noncompressed tail; and 3rd, on the form and disposition of the teeth, which are not distant, obtuse, and conical, but placed on the same line, and trenchant at their summit in the antero-posterior direction.

As the family of the Varanians is highly important and interesting, and the differences between that family and the Lacertidae are not, as we have seen, very wide, it will be most instructive to treat of both in the same article, and the reader will find a compendium of the organization and natural history of each under the title Varanides.

LACHESIS. (Herpetology.) [Viperide.] LACRIMAL ORGANS, DISEASES OF THE. The lacrimal gland is very rarely the seat of disease. It sometimes arises from, acute inflammation, but more commonly affected with a chronic enlargement and induration, forming a prominent tumour under the upper eyelid, which pushes the eye downwards and inwards. In this it may be removed without difficulty and with perfect safety from beneath the eyelid.

The most frequent disease of these organs is that common called fistula lacrimalis, which consists of inflammation of the lacrimal sac. [Eyn. When the inflammation is acute, it forms a tumour of about the size and shape of a horse-bean at the inner side of the eye, which is firm, red, hot, and extremely painful. The nasal duct being closed, the tears, which should pass through it into the nose, flow continually over the cheek, and produce redness and exudation. The eyelids swell, and the pain and tension are sometimes so severe as to excite considerable fever and even delirium. If the inflammation be not early checked, suppuration takes place, and the matter may escape by an opening, either above or below, remaining as a long time following at the corner of the eye. The treatment must be actively reducing, and when suppuration has taken place an early opening should be made into the sac at its most prominent part.

In the chronic inflammation of the lacrimal sac, which often succeeds to the acute, the nasal duct continuing obstructed, the sac becomes frequently distended with its secretion, and a mixture of mucous and purulent matter may be pressed out of it through the puncta lachrymalis. In some cases no other inconvenience is produced than that of the necessity of pressing out the contents of the sac once or twice a day; but in others, attacks of acute inflammation are apt to supervene, and excite very painful affections both of the lachrymal apparatus and the eye itself. In the first instance, leeches and other antiphlogistic remedies should be employed; but if they are unsuccessful, astringent lotions should be applied to the eye, that the discharge may be absorbed by the puncta lachrymalis, and conveyed through them to the nasal duct. But if these means fail, the lacrimal sac must be punctured near the inner angle of the eye, and a probe passed through it into the nose. A portion of bougie must be introduced into the passage; the canal was a little enlarged around the probe to permit the tears to pass through, and after a few days the bougie may be exchanged for a nail-headed style, which must be worn in the canal and sac for a considerable time.

LACHRYMATORY, a small earthen or glass vessel, generally with a long neck, found in the sepulchres of the antients Chifflet, in his 'Lachrymae prisco ritu diffusae,' states that they were intended to hold the tears of relatives or friends of the deceased. In the funeral rites and the notion was long supported by the antiquaries of different countries throughout Europe. It was afterwards combating by Schopflin and Paccoud, and as no such use of these phials or little bottles can be discovered in passages of the Roman writers, the conclusion has at last been come to that they were intended to contain perfumes or balsam only for sprinkling upon the funeral pile. (Millin, Dict. des Beaux-Arts, s.v. Par. 1866, tom. ii., p. 230; Fisson, Brev. Inaug. vol. i., p. 46.)

LACHSA, or LAHSA. [Arabia.]

LACISTEMA/C.Z.E., a small and obscure natural order of incomplete Exogenous plants, containing a few arboreous species, inhabiting the woods of tropical America, in low places. In shape they resemble the genus Celtis and in structure they approach very nearly to Urticaeae, from which Von Martius first distinguished them. The principal characters on which the order is founded are the dehiscent three-valved fruit and staminate inflorescence. Nothing is known of their properties.

LAOC'O NIC'A, called by the Roman writers Laocoon, a country of antient Greece, was bounded on the west in Messenia, on the north by Arcadia and Argolis, and was surrounded by the sea on the eastern and southern sides. Laocoon is a long narrow valley, running from north to south, and lying between two mountain masses which stretch from Arcadia to the southern extremities of the Peloponnesus: the western range, which terminated in the promontory of Tanarum, now Matapan (36° 27' N. lat.), the most southerly point of Greece, was called Taygetus; and the eastern, terminating in Cape Maleas, was known by the names of Parnom, Thornax, and Zarex. The whole drainage of this valley is collected in the river Eurotas which flows from the high lands of Arcadia, and is joined by the river Eurus, a little above Sparta. From its source to its junction with the Eurus the Eurotas flows through a very deep and narrow valley, which near Sparta is so much contracted as to leave room for little more than the channel of the river. After it leaves Sparta the hills receive farther from the river; but near Gionae they again approach it for a short distance, and afterwards retire to the west and east towards the Capes of Tanarum and Malea respectively, leaving between them a plain of considerable breadth and fertility, through which the Eurotas flows to the sea. Between the mountains which form the eastern boundaries of the valley of the Eurotas and the sea there was a narrow strip of land, which contained the towns of Delium, Minus, and Epidauros Limera, belonging to Laocoon; Prasae, which was farther north on the same coast, belonged to Argolis. The area of Laocoon was probably about 1800 square miles.

The district of Thyreatis, on the borders of Argolis, was an object of early contention between Argos and Lacedaemon. (Hec. 92.) It originally belonged to Argos, but was conquered by the Spartans about 547 B.C., in whose possession it remained till the decline of Sparta, when it was recovered by Argos. In the time of Pausanias it was included in Argos. (Paus., ii. 36.)

The snow remains on the highest points of Taygetus, in the neighbourhood of Amycle, to the month of June; the streams on the eastern slope of this mountain-range are abundant. The orange-tree flourishes at Mistras, near the antient Sparta, and fills the air with its perfume at a time when the summits of Taygetus are still wrapped in snow.

Colonel Leake describes the soil of Laocoon as 'in general a poor mixture of white clay and stones, difficult to plough and better suited to olives than corn.' (Moran, 1. 148.) The description is in conformity to that of Ephrudes, who says that 'it possesses much arable land, but difficult to work' (quoted by Strabo, viii. 366). Strabo informs us that there were some valuable stone-quaries near Tanarum and at
Arnobius, who taught rhetoric at Sicea in Africa. He lived at the end of the third and the beginning of the fourth century. His native language is uncertain, but he is generally supposed to have been an African. On the invitation of Diocletian, he went to Nicomedia, where he taught rhetoric. He became afterwards preceptor to Crispus, the son of Constantine, in Gaul. The time of his death is not satisfactorily ascertained.

His chief work is the "Divine Institutions," in seven books, written in reply to two heathens who wrote against Christianity at the beginning of Diocletian's persecution. The genuineness of this work is not exactly fixed. Basnage, Du Pin, and others place it about A.D. 329; Cave and Lardner about A.D. 366; Lardner states the arguments on both sides in his "Credibility"; and, on the whole, the latter opinion seems the more probable. Du Pin puts the dates of the "Institutions" too early, whereas the extant works of Lactantius are, an "Epitome of the Divine Institutions;" the first five books of which were not extant in Jerome's time, but were discovered and published by Pfeff in the year 1712; a treatise on the "Workmanship of God;" a treatise on the "Wrath of God," and a work entitled "Symposion," which he wrote when he was very young. He also wrote an "Itinerary from Africa to Nicomedia," a work entitled "Grammaticus," two books to Asclepiades, and a number of epigrams. The whole "Death of Persecutors" is ascribed to Lactantius, but its genuineness is much disputed.

The testimony to his learning, eloquence, and piety is most abundant. Le Clerc calls him the most eloquent of the Latin fathers, and places him on a level with Cicero's. Many writers however value his rhetoric more than his theology. He has been charged, among other errors, with Manicheanism, from which Lardner takes great pains to defend him. Middleton has shown, in his "Free Enquiry," that Lactantius was not free from the credibility with which many of the early Christian writers are chargeable.

Complete editions of his works were published by Heumann at Gottingen in 1736 (the preface to this edition contains a catalogue of former editions); and by the Abbé Lenglet, 2 vols. 4to., Paris, 1748. (Hieronymus, De Falsa Historia, c. 80; Eusebius Chronicorum, p. 180; Du Pin's Eclectical History, vol. ii. p. 189; Lardner's Credibility, vol. iii. p. 481, edit. of 1831.)

LACTEALES (from lac: milk) are so called from their containing an opaque white milky fluid. They are the system of vessels by which the chyle, or nutritive part of the food, is conveyed, from the intestines to the left subclavian vein, in which it is mixed with the blood. They have their origin in the villi of the small intestines, which are short hair-like processes, each consisting of a fine network of capillary vessels, or villi, which are connected with the blood veins. From the villi the chyle is carried, between the layers of the mesentery, through numberless converging branches, to the thoracic duct, the main trunk of the absorbing system, which, at the place where chief lacteals are prevented from communicating with the thoracic duct, forms the tail of the pancreas. The chyle is returned to the heart by the thoracic duct, and is conveyed by the thoracic duct to the blood.

The villi being so densely on the lining membrane of the small intestines that their summit form a smooth surface like that of the pile of velvet, the whole of this part of the intestinal canal presents a continuous surface for the absorption of nutrition. The power by which this absorption is accomplished is as yet imperfectly understood; the passage of the chyle through the intestine is entirely a passive process, for the movement of the fluid contained in them is exposed to the influence of the blood, from which it acquires colouring matter and fibrine.

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LACTIC ACID. This substance exists in milk, and in larger proportion when it has become sour; it was first recognised as a peculiar acid by Scheele, but he did not obtain it perfectly pure. It was afterwards observed by Berzelius in many animal fluids, and by Braconnet to exist with acetic acid in fermented meal, wheat-paste, the juice of the beet-root, and other vegetable substances. It has by several chemists been suspected to be a compound of hydrochloric acid with a peculiar matter not opposing it to the usual propertie of a true acid, Braconnet called it Naneice acid, from Naney, the town in which he lives; and it has also been termed Zumin acid, from Zyme (Zuyp), leaven. The acid of sauerkrat is also the lactic. M.M. Pelouze and Jules Gay-Lussac obtained it through the juice of beet-root to a temperature between 77° and 86°; fermentation commences after some days, and continues for two months; the juice, after the fermentation has ceased, is evaporated to the consistence of a syrup, during which crystals of mannite separate, and common sugar is also present. The syrup is then digested with alcohol, which dissolves the lactic acid; to this water is added, and when the alcohol is distilled off, precipitation of impurities takes place, and solution of lactate of zinc by adding the carbonate; and the solution of lactate of zinc is filtered and crystallized, which is purified by again dissolving in water and treatment with animal charcoal; the lactate of zinc is then decomposed by barytes, and the lactate of barytes by sulphure acid, which precipitates sulphate of barytes, while the lactic acid remains in solution. Sour milk treated in the same way also gives lactic acid: the aqueous solution of the acid may be concentrated, and rendered of use in ether, which leaves a little flocculent matter undissolved. Lactic acid is colourless, inodorous, very sour, and may be so concentrated as to have a specific gravity of: 1.215: it attracts moisture from the air, and dissolves in water and alcohol in all proportions. When it is diffused with its ferment, it is converted into oxalic acid. When added to boiling milk it is capable of immediately coagulating about 700 times its weight; but when cold it produces comparatively little effect upon it: it also coagulates albumen.

When added to a strong solution of acetate of magnesia, granular lactate of magnesia is precipitated; but it gives no precipitate with lime, barytes, or strontia-water.

When the most concentrated lactic acid is heated gradually, it becomes more fluid, darker coloured, and yields acetic acid and inflammable gas, charcoal, and a white solid matter, which is both sour and bitter: when this is dried between folds of ribulous paper, and afterwards dissolved in alcohol, it yields perfectly white rhombic crystals, which are anhydrous lactic acid; they are fusible at 225°, and volatile at 472°, the vapour again crystallizing on condensation: when dissolved in water the solution has the properties of that from which the crystals were obtained.

The crystal consist of--

<table>
<thead>
<tr>
<th>Four equivalents of hydrogen</th>
<th>4 or 5°6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Six carbon</td>
<td>36 50°</td>
</tr>
<tr>
<td>Four</td>
<td>32 44°</td>
</tr>
<tr>
<td>Equivalent</td>
<td>73 100°</td>
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</tbody>
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In the drier lactates however it is always combined with one equivalent of water.

The larvae are not an important class of salts, and we shall therefore mention the general properties of only a few of them.

The following are all soluble in water, but many of them are uncrystallizable: - lactate of ammonia, deliquescent and uncrystallizable; lactate of potash and of baria; lactate of baryta, and Diphosphates, being in vacuo, become crystalline masses. Lactate of lime and of barytes yield gum-like products: the lactates of sodium, peroxide of iron, and copper, do not crystallize; but that of magnesia and lactate of zinc crystallize in quadrilateral prisms.

LACTUCA/RICUM is obtained from the Lactuca Virosa, being the insipid milky juice of the plant, and which is at first white, but afterwards by exposure to the air and sun comes to be of a brownish colour. The juice of the leaves only should be collected before the flowering is begun; puncturing the leaves is the best mode of procuring it.

Other plants often mistaken for it: Lactuca sativa (Thridentace, very inferior), L. angustana, L. quercina, L. scabra; and many others which belong to the former genus; it contains lactucic acid. It yields by distillation its odour and taste to water, which thus acquires some of the virtues of the plant. The insipid conclusive juice resembles opium in its action, but is much feebler; nevertheless it suits some cases better. In pulmonary diseases it is often a useful sedative. The common garden-lactua also possesses sedative properties, and eaten towards bedtime has often contributed to procure rest in cases of insomnia.

LACTUCIC ACID, discovered by Pfaff in the juice of the lactuca virosa. When acetate of lead was added to the clear juice, lactuate of lead was precipitated, which was washed and decomposed by hydrosulphure acid: the uncondensed portion, a yellowish mass, crystallizes as lactate of lead, which are very strongly acid, and greatly resemble oxalic acid; but they differ from it by giving a green precipitate when added to the neutral protosulphur of iron, and a brown precipitate with copper; with magnesia this acid forms a soluble salt. It has not been minutely examined, nor has it been analyzed.

LACUANA. [Tobodiana.]

LADAKH is a kingdom in Asia, situated to the east of Cashmere, composed of that part of the Himalaya Mountains which is called the Tibet Panjahl range. According to Moorcroft its area is equal to half that of England. It has the figure of a triangle, whose longest side runs from Bissarht [Himalaya] along the mountain-range to Cashmere. To the north of it lie Baltistan, or Little Tibet, and Khotan in the Chinese province of Thians-ban Nanlu. From the last-mentioned country it is divided by the nearly unknown mountain-chains of Kuen lung. East of it is Chang-tang, a province belonging to Tibet.

Ladakh is a part of the elevated table-land which is supported by the Himalaya system, and divided by it from the low plains of the Ganges and India. Its elevation above the sea amounts to from 4000 to 6000 feet. Though it does not appear that any of the mountains within its boundaries rise to a great height above this elevated base, its surface is a continual succession of ascents and descents, many of which are very steep. Through the middle of the country runs the valley of the river Indus, here called Singh-ke-tse. This river, after passing Gertope, enters Ladakh at its southern extremity, where its valley is upwards of two miles wide. It continues to be wide as far as Roolok, a considerable distance above Leh, the capital of the country. At Roolok the high land comes up on the bed of the river, which rushes on with great impetuosity until it issues forth into the plain on which Leh is built. The plain is extensive and well peopled, but the country bordering it on the north is unknown.

The Indus, which traverses the country in a north-north-western direction, receives here several considerable tributaries, of which the Shayuk, the most important, joins the Indus below Leh. There are several large lakes in this country, most of which are salt, and furnish great quantities of salt. The largest of these lakes is that of Chimoerre, which is from 20 to 25 miles long, with a width of 8 or 10 miles.

As the surface of the country is so elevated above the sea, its climate and productions do not correspond to its latitude (30° to 35°). The whole country is covered with snow in winter, and most of the mountains are even in the month of June. The winters are long and severe, and the rivers are covered with ice, which facilitates travelling...
in this season, just as in the northern countries of Europe. The people are mostly clad in sheep-skins and fur, as in Russia. The summers are hot and dry. Rain does not abound.

The plain about Leh, though of moderate fertility, is well cultivated, which is the case with other districts of less extent. Moorcroft thinks that our agriculturists might learn something from the inhabitants of Ladakh. No rice is grown in this district. The summer moisture is considerable; but the rain which falls in autumn is small, it exceeds the amount. In some districts a kind of barley is raised which resembles wheat; in others cotton is cultivated in small quantities. Turnips are grown very extensively. Wool is scarcer: poplars and some other trees are planted in the lower regions.

The pastures occupy a large part of the country. The cattle are small and of three different kinds, common cattle, chowry-tailed cattle, and a third kind called tho, a bastard breed between the two. Horses are pretty common. On the uncultivated plains a species of wild horse is found, called by Moorcroft Equus Kiang. Among the domestic animals is the dog, which is large and strong. The animal from which the leather for saddles is obtained is described by Dioscorides as comes, and it is not the same as goats, which also live in a wild state. But the goat which yields the material of the shawls is not found in the country. Sheep are numerous, and among them there is a small race called the parrik-sheep, which produces excellent wool.

The sands of most of the rivers which fall into the Indus contain small particles of gold, that are collected in several places. Other metals are not mentioned. Saltpetre and sulphur also are found, and supply materials for gunflints.

Leh, or Lai, the capital of the country, contains 700, or, according to Moorcroft, 1000 houses, each several stories high and substantially built. There are several bazaars, each consisting of twelve to fourteen shops. Leh is a place of great trade, being the principal entrepôt for the shawl-wool, and three great fairs are annually held here, of which that in February is the most frequented. These fairs are attended by merchants from Yarkand, in the Chinese province, as well as by such from Amritsar and other towns of the Punjab, and particularly from Cashmere. Roodok, on the right bank of the Indus, but higher up the river, is another place of considerable traffic. It is said to contain 300 families, and is chiefly connected with Hindustan by the way of Kunawar in Bashair. [Himalaya]

The inhabitants of Ladakh belong to the same race as the inhabitants of Tibet. They are a very industrious and enterprising people, and are accounted active and valiant by their neighbours, because they are not subject to their countries by commerce. Ladakh, being situated between Hindustan, Cashmere, Khotan, and Tibet, is the thoroughfare of a very extensive commerce. The commercial routes are few. That to Tibet runs from Leh to Roodok, and thence to Gertop alongside the Indus; from Gertop it seems to cross mountain-ranges to L Hassa. From Roodok the road to Kunawar traverses a table-land, and then descends through the valley of the Sutlej. All the roads are almost impassable. The country between the Sutlej and Kunawar is that country which occupies the tract where these three rivers join. The road from Leh to Cashmere and the Panjeh leads westward over the Tibet Panjeh mountains, and is the only one by which Europe is connected with the Punjab. Leh is called Tibet by the Cashmires. The road from Leh to Yarkand is by far the most difficult and dangerous: it crosses the high mountain-range of Karakorum and the whole mountain-system of the Kunen. The sparsely covered mountain-tracts which are nearly uninhabited.

The principal object of this extensive commerce is the wool of the goats, which is used in the manufacture of shawls. It is brought from Gertop to Leh, and thence to Cashmere and the Panjeh; several hundred horse-trains are said to be carried annually by this route. We are not acquainted with the articles which are given in return, and have only some accounts of those which are sent to and received from Kunawar. The merchants of Kunawar bring to Roodok sugar, tobacco, cotton-cloth, flax, indigo, swords, copper, tin, iron, paper, rice, and spices: they take in return salt, borax, gold-dust, tea, and shawl-wool. [Moorcroft, in the Transactions of the Asiatic Society, in the Journal of the London Geographical Society, and in the Asiatic Journal; Hägél, in the Journal of the London Geographical Society; Ritter's Erdkunde, i.]

ADANUM, sometimes written Laddanum, but incorrectly, as it is the Ladanum (Αδάνος) of the Greeks, and the Ladanum of the Arabs. It is first mentioned by Pliny the Elder (iii. 112) as procured in Arabia, and used by the Arabs for fumigation; the word is not Greek, but an Arabic word with a Greek termination; the Greeks also used the word ledus (Λέδος) to indicate the shrub which produced the resin. This gum is produced by several species of Cistus, the histos (ηζόρος) of Dioscorides, though the name and description are often confused with those of the histos (ηζόρος), or Hedera. C. ladaniferus, creticus, Spanish, or Leh, and C. Ladanus, are usually mentioned as the species which are indigenous in the Grecian Islands, in Spain, Italy and the south of France. That obtained from the Levant is the most celebrated. The juice exudes upon the leaves and branches of these shrubs, and is collected, according to Tournefort, by means of an instrument resembling a rake, with leather thongs instead of teeth, which is drawn over the plant; and as the juice adheres to the thongs, it is afterwards separated. Ladanum is also described by Dioscorides as being collected from a certain species of goats which had been feeding on the leaves of Cistus. (Compare Herodot, iii. 112.) It is now seldom employed for any purpose, as it is with difficulty obtained of a sufficient degree of purity from the adulterations to which it is subjected, one substance yielding 72 grains of resin, another 40 grains, and another 86 of resin, out of 100 parts. The purest kind, seen only in the places where it is produced, is described as blackish, homogeneous, and tenacious, easily softening under the fingers, and even sticking to them; having a greyish fracture, which however becomes black by exposure to the air; rather a bitter taste, and a very agreeable smell from the presence of a volatile oil. It was formerly employed as a stimulant, more recently as an instrument of resuscitation, and the most esteemed kind by the Turks as a perfume, and used for fumigation.

ADOGA. LAKE. [Russia]

ADROURNE ISLANDS, so called from the thievish disposition of the natives at the time of their discovery by Magalhaens (1521), are also called Mariane Islands, in honour of the queen of Philip IV. of Spain, who caused them to be settled. They extend in a northern and southern direction between 13° and 26° 30' N. lat., and between 144° and 149° 40' W. long. They are about the size of the British islands, and have ten thousand inhabitants, who are mostly of a volcanic character, and even in modern times some of the volcanoes have been in activity. Like other islands of this description, their surface is broken, and rises to high hills and even to mountains. But the climate is generally healthy. Being exposed to the trade-winds, the climate is not so hot as might be expected from their geographical position. Nearly every kind of intertropical product thrives on these islands, which produce cotton, rice, indigo, Indian corn, sugar, cacao, coconuts, tobacco, plantains, &c. in abundance. The Spaniards have introduced most of these products, as well as the lama, from Peru, which is said to thrive on the mountains. Cattle, horses, mules, and asses are numerous. The volcanic islands are an important object to the Chinese. The Chinese market is Guajin, which is about 80 miles in circumference, and according to Kotzebue, who has given the latest account of these islands, is inhabited by 12,000 or 13,000 souls. The principal island is Guajin, and the seat of the Spanish governor is S. Ygnacio de Agaia, which in 1816 contained 3118 inhabitants. It has only an open roadstead, defended by two small fortresses; but about 10 miles farther south there is a good harbour called Calderona, or Caldrona, about 2 miles in length, and 2 in breadth. The other islands, Tinian, has obtained some notoriety from the stay there of our distinguished seaman Anson, and from the extensive ruins which indicate that these islands were once inhabited by a people well acquainted with the arts of civilization. The original inhabitants, who at the time of the foundation of the Spanish settlement, in the middle of the seventeenth century, are stated to have amounted to 150,000, have nearly disappeared on Guajin, only one family of them exists at Lambas, but a great number of the inhabitants of the other islands, which are only no
minimally dependent on the Spanish governor. The present
population of Guayan, which in 1816 amounted to 5389 souls,
consists of settlers from Mexico and the Philippine Islands,
who are called by the Spaniards Los Indians; they speak
Spanish, and are Catholic Christians. The number of
Spaniards is very small.

(Anson's "Voyage round the World"; Otto von Kotzebue's
"Voyage round the World".)

LARKEN. [Bristol, Eng.]

LAEOMODIPODA, Latreille's fourth order of Crustacea,
placed by him between the Amphipoda and the Isopoda. He
describes them as being the only forms among the Malacostracea with sessile eyes (Edriophthalmians*) whose posterior extremity does not present
distinct branchiopod, and which have hardly any tail, the two
last feet being inserted at that end, or the segment to which
they are attached being followed by not more than one or
two other joints, which are very small. They are also
states, the only ones in which the two anterior feet
(which agree with the second jaw-feet) make a part of the
head.

The Leomodipoda of Latreille have all four setaceous
antennae carried upon a peduncle of three joints, mandibles
without palps, a vesicular body at the base of four pair of
the feet at least, beginning with the second or third pair,
reclining those of the head. The body, which is most
frequently filiform or linear, is composed (reckoning the
head) of from eight to nine joints, with some small appendages,
form of tubercles, at its posterior and inferior ex-
tremity. The feet are terminated by a strong hook. The
four anterior feet, of which the second are the greatest, are
always terminated by a monactodont claw. In many the four
successing feet are shortened, less articulated, without
any hook at the end, or rudimentary, and not at all for
ordinary use.

Reproduction.—The females carry their eggs under the
second and third segments of the body, in a pouch formed
by approximated scales.

Habits and supposed place in the System.—The Leomodi-
dopoda are marine, and Savigny considers them as ap-
proaching the Cyamidae in form and mode of life, with that form,
the passage from the Crustacea to the Arachnidae.

Latreille brought the forms under one genus, Cyamus,
with the following subdivisions and subgeneric applica-
tions.

1. Filifornia. (Latr.)

Body long and very slender, or linear, with longitudinal
segments; feet similarly elongated and slight; stem of the
anterior appendages much reduced. Leptomera. (Proto, Leach.)—Feet fourteen
(reckoning the two annexed to the head), complete, and in a
continuous series. (Latr.)

In the Leptomera (Gammarus pedata, Mull.; Zool. Dan.)*
all the feet, with the exception of the two anterior ones,
have a vesicular body at their base. In the Proto of Leach
(Cancer pedatus, Montag. Trans. Linn. Soc., ii.) these
appendages are peculiar to the second feet and the four
successing ones.

Example, Leptomera pedata.

Leptomera pedata (magnified).

Naupredia, Latr.—Feet ten, in a continued series; the
second and two succeeding pairs have a vesicular body at
their base.

Locality. Coastal of Europe, France, &c.

Caprella, Lam.—Feet ten, but in an interrupted series,
commencing with the second segment (inclusive), and not
reclining the head. This segment and the following one

* Or, more properly, Hecodiophthalmus.

have each two vesicular bodies, and are totally deprived of feet.

Locality. Northern and Temperate European oceans.

Habits.—The Leomodipoda of this section keep among
the marine plants and sponges, and walk like caterpillars,
turn frequently with rapidity on themselves, or set up their
bodies, vibrating their antennae at the same time. In swim-
ing they curve the extremity of the body.

2. Oralia. (Latr.)

In this subdivision the body is oval, with transverse seg-
ments. The stem of the antennae appears to be inarticu-
lated. The feet are short, or have but little length; those of
the second and third segments are imperfect, and ter-
minated by a long cylindrical joint without hook; at their
base they have an elongated vesicular body. These Leomodi-
dopoda form the subgenus

Cyamus, Latr. (Laruda, Leach.)

M. Latreille states that he has seen three species, all of
which live on Cetacea, and the most known of which,
Cyamus Ceti (Oniscus Ceti, Linn.; Squilla, Degree; Pyca-
nonum, Fabr. and Sav.) is found also on the Mackerel.
The fishermen term it the whale-louse, Pou de la baleine.
Another species, very analogous to the first, was brought
back by Delalande from his voyage to the Cape of Good
Hope. The third and much the smallest is found on the
Cetaceans of the East Indian seas. (Latr.)

Cyamus Ceti (magnified).

M. Desmarest gives the Leomodipoda the same position as
M. Latreille, and divides them into two sections.
The first, consisting of Leptomera, Latr. and Lam. (Proto,
Leach; Caprella, Lam.); the second of Cyamus (Cyamus,
Latr., Lam.; Panope, Leach; Laruda, Leach).

M. Desmarest remarks that M. Latreille never saw the
Leptomera themselves, and that he has separated them
from Caprella and Proto from published figures only.

M. Milne Edwards makes his Legion of Edriophthal-
mians comprise the Amphipoda, Isopoda, and Leptomera.

LAENNEC, THEOPHILE, M.D., was born at Quimper, in Lower Brittany, in 1781. The
first part of his medical education was conducted by his uncle,
Dr. Lanneau, a physician of repute at Nantes, and in 1800
he went to Paris, where he studied a few medical courses,
and attached himself to the Hôpital de la Charité, of which Corvisart was the chief physician.
In 1814 he took the degree of doctor of medicine, being already
distinguished as well for his literary acquirements as for his
professional industry and talent. In the same year he
became chief editor of the "Journal de Medicine," to which
he had communicated several excellent papers, both on
healthy and morbid anatomy. Having obtained consid-
erable reputation, both in private practice and by his lectures
and writings, he was appointed, in 1816, chief physician to the
Hôpital Necker, and it was there that he soon after
made the remarkable and important discovery of mediate
auscultation. [AUSCULTATION.] From this time he devoted
himself assiduously to the pathological and diagnostic.
In June, 1818, he read his first memoir on it to the
Academy of Sciences, and in the following year he published his "Traité de l'Auscultation Médiane." But the
labour necessary for its accomplishment so injured his
health that he was only very reluctantly induced to leave his
immediately afterwards obliged to resign all his studies as
well as a large private practice, and to leave Paris for his
native province. He returned in 1821, with his health re-
stored, and having resumed his lectures, he was soon after
appointed professor of medicine in the College of France.
In 1822 he was chosen professor of clinical medicine, and
he regularly delivered the lectures at La Charité till 1825,
when, after the publication of a second edition of his work,
his health again failed him. Indications of consumption
were discovered by means of the art he had himself in-
Laennec's work on medical auscultation is undoubtedly the most important thing that the present century has produced in medical science. But it must be remembered that only a small portion of his high reputation is due to the discovery of the stethoscope, although from the tone of his first book and the evident kindness with which he asked for the basis of his future fame. He, with many of Corvisart's pupils, had been long in the habit not only of using percussion as a means of diagnosis, but by applying the ear directly to the chest: the stethoscope was merely a convenient auxiliary for that purpose which they had in view, but so little essential that many of the best physicians now employ it only when the direct application of the ear is personally inconvenient. Had the stethoscope been invented by any one of less genius and fitness for the study of diseases than Laennec, it would probably have fallen into the same neglect as the more original discovery of the value of percussion by Avenbrugger. He had worked and translated; and although by retiring to Brittany he seemed again for a time recruited, he died of consumption in the same year.

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course is lower than the immediate banks of the stream, and the river, in the season of the floods, either overflows its banks or in part breaks them down, the water inundates the low land; and if on the subsidence of the flood the water rises into the channel, the lagoon is merely temporary, and is simply an inundation. This, according to circumstances, may be a benefit to the country or a disaster. Inundations are a benefit when they bring with them a rich vegetable humus, which, on being cultivated, yields abundant crops; to such deposits Lower Egypt owes its great fertility. Inundations of this kind either diminish or increase annually, for, by repeated deposits, the soil becomes raised; and unless the bed of the river rises in proportion, the water is eventually kept within its channel; but if, on the contrary, the bed rise, the inundation gains every year in extent of surface what it loses in depth of water. Should the inundation however, instead of a prolific means of culture, of埙 and stones, that, as has been frequently experienced in Italy, the inundations are a cruel disaster, for they condemn rich lands to eternal barrenness and sterility. If the configuration of the land and other circumstances prevent the water of the inundated parts from flowing back on the subsidence of the flood, then a permanent lagoon is formed, and the land thus laid under water can only be recovered at a great expense, even if that be possible. These lagoons are generally fatal to the neighborhood, for the water, being stagnant, gives rise to unwholesome miasmas, producing agues and other malignant disorders. Such lagoons are not absolutely confined to the lower parts of water-courses, though it is in such places that they are most frequently met with. Fluvial lagoons are sometimes formed by natural infiltration; remarkable instance of which is the marshy lagoon of Ybena, on the Parana, in South America.

Marine lagoons are much more common than those on the borders of rivers. They are formed sometimes by the encroachments of the sea, and sometimes by the throwing up of a bar or bank, which eventually divides off a portion of the sea altogether, or leaves merely a small opening. In Europe there are many marine lagoons: the Adriatic on the north and west, and the North Sea, in parts particularly, is full of them. The Zuyder Zee with the Sea of Haarlem is a vast lagoon. There are also two very large ones known by the names of the Frische Haff and the Curische Haff, at the south-east angle of the Baltic Sea. In the Sea of Azoff there is the Sivash or Putrid Sea. On the east coast of South America there are some very large lagoons, and they abound at the bottom of the Mexican Gulf. Marine lagoons can never be useful unless when sufficiently large and deep to admit of being navigated, in which case they form secure harbours. When shallow, they give out foetid exhalations like fluvial lagoons, as is too well known in Venice, which is built on the 60 islands of the lagoon at the extremity of the gulf; though in this case much of the evil arises undoubtedly from the circumstance of the lagoon being the receptacle of all the filth of the city.

LAGOMYS. [LEPORID.]
LAGOUS. [TETRAONID.]
LAGOS is a river in that part of Guinea which is called the Slave Coast. It rises on the southern declivities of the Kong Mountains, near 3° N. lat., and runs in a south-south-eastern direction until it approaches the sea, where in the low and level country it divides into two branches, of which the eastern, flowing parallel to the shore for about 12 miles, falls into the sea near 4° 12' N. lat. The western also runs along the shore of the Gulf of Guinea at a few miles distance from the sea, and according to Bowdich it traverses the low country as far west as the Rio Volta (9° of Greenwich) with which it unites its waters near its mouth. But in this long course there are several channels, by some of which the river always communicates with the sea, and by others only during the rainy season. On one of these channels Badagry is situated. The length of the river, not including the western branch, probably does not exceed 150 miles. It is navigable to a considerable distance from the sea.

LAGOSTOMYS, or LAGOSTOMUS. [CHINCHILID., vol. vii., p. 87.]
Having an opportunity of giving a figure from the living animal in the menagerie of the Zoological Society at the Regent's Park, we here subjoin it. The skeleton (from the late Mr. Brookes's figure) is given in the article referred to.

LAGOTHRIX, M. Geoffroy's name for a genus of South American monkeys, thus characterized:—

Dental formula:—Incisors 4; Canines 1-1; Molars 6-6 = 36.

Facial angle about 50°; muzzle projecting; head round; extremities proportioned to the body; anterior hands provided with a thumb; tail strongly prehensile, and having part of its extremity naked below; hair strong and curled; two species are recorded, Lagothrix Humboldtii and Lagothrix cauca. The first of these, or the Caparro, was found by Humboldt and Bonpland in the hut of an Indian, who had captured it in an excursion to the westward. Size about two feet two inches without the tail. Head round and very large. Hair long, strong, and uniform grey, the tips black. Face naked and black; mouth beased with long stiff bristles. Tail rather longer than the body, prehensile, naked at the extremity.

Habits gregarious; frequently seen raised on the hinder extremities.

Locality. Rio Guaviare, one of the tributary rivers of the Orinoco. The other species has shorter hair, and is of the size of the Sapajous-sai (Cebus Capucinus, Desm., Simia Capucina, Linn.).

Locality. Brazil. Mr. Gray places the form in his family Sartignyidae, and in the second subfamily of it, viz. Aletrina. Mr. Swainson arranges it in the family Cebidae, between Mycetes and Atelis. LAGOTIS. [CHINCHILID., vol. vii., p. 83.]

LAGRANGE, JOSEPH LOUIS DE, was born at Turin, 23rd January, 1736. His parents were Joseph Louis Lagrange and Marie Therese Grass, the daughter of a physician at Cambiano. His father held the office of treasurer of war at Turin, and had once been in affluent circumstances, but had ruined himself by injudiciously entering into hazardous speculations. To this circumstance, which was regarded as a misfortune, Lagrange himself has frequently attributed a considerable share of his subsequent fame and happiness. 'Had I been rich,' he has been heard to say, 'I should probably not have become a mathematician.'

In the early part of his studies he manifested no particular love either for the pure mathematics or the physical sciences. His chief delight consisted in the perusal of the various Latin authors, and more especially the works of Cicero and Virgil. These however in his second year were superseded by the synethetical writings of the antient geometers. It was in his turn to give place to the more powerful analysis of modern times. The perusal of a memoir by Dr. Halley (Phil. Trans., 1693) 'On the superiority of modern algebra in determining the focus of an image of a glass' is said by his biographers to have convinced him of the utter inadequacy of geometrical methods as instruments
By a beautiful application of his method of variations to a principle of dynamics discovered by Huyghens, and known by the name of the Conservation of vis viva, he was led to the following inequalities, that the product of the velocity and the element of the curve, is a maximum or a minimum, according as the kinetic energy of the system of bodies acted upon by forces proportional to any function of the distance, the curves described by the bodies are necessarily such that the sum of the products of the mass, the integral of the velocity and the element of the curve, is a constant, although Lagrange and Euler could not attain a proof of which offered so much difficulty to Euler, has been denominated the principle of least action, and is frequently regarded as one of the four great principles of dynamics, which, although Lagrange has been led to a still more general formula given by him in the second section of the second part of his Mécanique Analytique.

When the Academy of Berlin was threatened with the departure of Euler for St. Petersburg, Frederick renewed his offer of the professorships to D'Alembert. D'Alembert, however, from various motives, being unwilling to quit his native country, suggested that the professorship might be conferred upon Lagrange. Lagrange was accordingly appointed professor of the physical and mathematical sciences to the Academy, and continued for more than twenty years to enrich the memoirs of that Society with his researches connected with physical astronomy and other subjects of importance. The insignificant stipend (1360 crowns) which was allotted to him, however, the frequent offers made to D'Alembert, cannot fail to strike every reader with surprise. Lagrange quitted Berlin after the death of Frederic, not being satisfied with the treatment he had received. He was previously invited by the ministers of Louis XVI. to settle in Paris.

In 1779 M. Lagrange was elected foreign associate of the Royal Academy of Paris, and in 1787, on his arrival at the French capital, he received the honorary title of veteran pensioner. Apartments were allotted to him in the Louvre, and here, surrounded by the principal mathematicians of the day, he continued to live happily up to the time of the Revolution. After this he began to subject to fits of melancholy, which increased upon him, and it was heard to say that his enthusiasm for the sciences was extinguished, and that his love of physical research had disappeared. He was successively appointed professor of mathematics to the normal and polytechnic schools, member of the Institut, of the board of longitude, grand officer of the legion of honour, and count of the empire. He died at Paris, the 10th April, 1813, in his 78th year. His remains were deposited in the Pantheon, and his funeral oration was spoken by his illustrious friends Laplace and LaCredé.

Among those who were most effectually struck with the limits of our knowledge," said Laplace, in his funeral oration, 'Newton and Lagrange appear to have possessed in the highest degree the happy art of detecting general principles, which constitutes the true genius of science. This art, joined to a rare elegance in the exposition of the most abstract theories, characterized Lagrange.' His work on Mechanics, resting upon the method of variations of which he was the inventor, flows with a clear and regular style, and is distinguished by elegance and precision, to a degree unknown in any other treatise on the subject, and which in the hands of the most judicious masters, has been eminently productive of useful results. Lagrange has, moreover, contributed with the highest success to a number of other subjects of mathematics, and has exhibited abilities, which are not to be found in any other man of his age, or even in the great Galileo.

We conclude this imperfect sketch of the life and writings of Lagrange with a list of his published works, which we believe to be complete:—
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edit. 1801, 2nd edit. 1804, 3rd edit. 1866 (printed in the Journal of the Polytechnic School, tome 5).

Memoirs in the Transactions of the Academy of Turin.
1762. Tome 2. Supplement to the Researches on the Propagation of Sound, contained in vol. 1; A new method of determining the Maxima and Minima of Indefinite Integral Forms; application of that method to Dynamics; New Researches on the Propagation of Sound.
1766. Tome 4. Solution of Differential Equations; Method of Variations; On the Motion of a Body acted upon by two Central Forces.

Memoirs in the Transactions of the Academy of Berlin.

Memoirs in the Transactions of the Berlin Academy (new series).
1770. On Tauchtonos Curves; Algebraic Equations, and Arithmetic.
1771. On Prime Numbers and Algebraic Equations.
1772. On Differentiation and Integration; on Imaginary Roots; Astronomical Refraction; Integration of Equations of Particular Differences.
1773. On the Rotatory Motion of a Body; on the Attraction of Elliptic Spheroids; on Triangular Pyramids and Arithmetic.
1774. On the Particular Integrals of Differential Equations; on the Motion of the Nodes of the Planet's Orbits.
1775. On Finite Differences; the Attraction of Elliptic Spheroids; and Arithmetic.
1776. On the Change in the Mean Motions of the Planets; Continued Fractions; and Spherical Astronomy.
1777. Diophantine Analysis; On Escape; Determination of the Imaginary Roots of Algebraic Equations; On the Motion of a system of Bodies which mutually attract each other inversely as the square of the distance.
1778. Determination of the Orbits of Comets from three observations; Theory of Telescopes.
1779. On Particular Integrals; Construction of Geographical Maps.
1780. Liberation of the Moon, and on other problems depending on the Non-Sphericity of that Planet.
1781. Theory of the Motion of Fluids; Principles and general formulae for determining the secular variations of the Planet's Orbits; Report of M. Lagrange on a method proposed for finding the Quaternions of the Circle.
1782. Continuation of the preceding Memoir on Solar Variations: Report of Lagrange on a method proposed for determining whether the Earth is flattened at the poles.
1783. On the periodical variations in the Planetary Motions; corrections at the Mean Motions of the Planets; Corrections of the common methods of Approximation for integrating the Equations of the Planets' Motions; a particular method of Approximation and Interpolation; a new proposal of the Centre of Gravity; Third Memoir on the determination of the Orbits of Comets.
1784. Theory of the periodical variations in the Planet's Motions, independent of the Inclinations and Excentricities, for each of the six principal planets.
1785. Differential Equations.
1786. Geometrical Theor $\ldots$
1787. Solution of a problem in Life Annuities; Determination of the general term of a recurring series whose generating equation contains equal roots; on Elliptic Spheroids; on Interpolation; on the Secular Equation of the Mean; Addition to a Memoir by M. Duval-le-Roi on the Secular and Periodical Variations of Herschel, printed in the Memoirs of the year 1787.

1764. On the Liberation of the Moon (this is the memoir for which the medal was awarded to M. Lagrange by the French Academy, on which he first employs the principle of Virtual Velocities).
1766. On the Inequalities of Jupiter's Satellites.
1772. On the formation of Tables of the Planets; on the Problem of Three Bodies.
1776. On the Motion of the Nodes and the Inclinations of the Orbits of Planets.

Savans Etrangers.
Tome 7. On the Secular Equation of the Moon. (Prize Memoir for the year 1774.)
Tome 10. On the Perturbations of a Comet which pro\-nearly to a Planet.

French Institute. Memoirs of the First Class.
1808-9. On the Variation of the Elements of a Planet, and more particularly the Variation of the Major Axis of the Earth's Orbit; on the Theory of the Variation of Arbitrary Constants in all Mechanical Problems (2 Memoirs).

Journal of the Polytechnic School.
Tome 2. On the principle of Virtual Velocities; on the Transformation of Fractions; Theory of Analytical Functions; Analysis of Spherical Triangles.
Tome 3. On the Calculus of Analytical Functions.
Tome 7. Supplement to the same.
Tome 8. On the Attraction of Spheroids.

Connaissance des Temps.
1817. On the Calculation of Eclipses.
1819. Remarks on the Method of Projection in the Calculus of Eclipses.
1821. Method of determining the Orbit of a Comet from Observation.

M. Carnot, while minister of the Interior, recommended to his government the purchasing of the manuscripts of Lagrange, and, at his suggestion, the mathematical and physical class of the Institute nominated a commission to select such as were in a state for publication; the rest are arranged and deposited in the library of the Institute.

(Entage de M. Delambre; Mémoires de l'Institut, 1812; Lagrange, Mécanique Analytique, 1815; Lagrange, Théorie des Fonctions Analytique, 1813; Miscellanea Turinensis, 1759-81; Opuscula Mathematique de M. d'Alembert, 1761-94; Notice des Mathématiciens de l'Académie des Sciences, de l'Institut de France, de l'Université; Professor Hamilton's Memoirs on a General Method in Dynamics, in Phil. Trans., 1834; Dictionnaire Bibliographique de Quérard, 1829, &c.)

LAGRIDGE (Lagriate, Latredie), a family of Coleopter., that contains the section Hydrophilus of the characters which are—Elytra soft; and thorax considerably narrower than the elytra, the latter almost cylindrical, oval or quadrate and truncated; antennae inserted near the middle of the eye, each of which is brown, large, and long; the posterior pair of legs often curved; posterior joints of the tarsi thickened and the claws simple. This genus Lagriata, Fab., contains those species in which the antennae are gradually thickened towards the apex, and have the last joint ovate; the post part of the head is but little produced, but behind is prolonged, and slightly rounded; the thorax is almost cylindrical or square.

One species of this genus exists in England; L. hirta. an insect not infrequently found in hedge hoppers, and apparently most abundant on the north. It is about 4-12ths of an inch in length, of an oval form, with a narrow head and thorax; these, as well as the body beneath, the antennae, and the legs, are black; the elytra are dirty yellow, soft, and pubescent. The body of the female is a little narrower than that of the males, and the antennae are longer.

The genus Statyra (Latredie) also belongs to the present
Lahore, river. [RHINE.]

Lahore, a province in the northern part of Hindu-
dustan, before they succeeded in establishing themselves in the central parts of the peninsula. Humaisan, the father of Akbar, made its place of residence during a great part of the Mogul Raj, was greatly enlarged and improved. The city and suburbs are said to have then extended three leagues in length. Thenoven, who was there in 1665, says, that the city, exclusive of the suburbs, was then a league and a half in length. Many of the buildings have since gone to ruin, but the city is even now of considerable size. The inhabitants not being in general wealthy, their dwellings are usually mean in their appearance; there are however some remarkable buildings. The mausoleum of Jehangir is a most splendid one, and in very good repair. There is a square building 66 paces on each side, and the whole is surrounded by a wall, each side of which is 1800 feet. On the south side of the city in the open plain is another tomb, that of Noor Jehangir Begum, which is quite as handsome. There are, and the numerous domes and minarets of the mosques, give the city an imposing appearance at distance, but which is not confirmed by nearer inspection. Lahore is not a place of much strength. About thirty years ago it was surrounded by a wall and a broad ditch, having ramparts and bastions at intervals. The city is distant 386 miles from Delhi, 517 from Agra, 619 from Lucknow, 1070 from Bombay, and 1356 from Calcutta, all traveling distance.

LAIBACH, or LAYBACH. [LYBRIA]

L'AIGLE. [ORNE]

LAINEZ. [JESUITS]

LAIRESE, GERARD, an eminent painter, was born at Li\'ege, and it was acquired knowledge of Oriental art from his father; but there is reason to believe that he also studied under Bartoleto, from whom he probably derived the taste for the antique which appears in his works. He first followed his profession in Liege, where he met with little encouragement, but having been advised to send one of his pictures to the famous picture-dealer Vylenburg, at Amsterdam, he was so pleased with it that he prevailed on Lairesse to remove to Amsterdam, which proved the means of raising and of making him from poverty and obscurity to fortune and reputation.

Having a lively imagination, great rapidity of execution, and great industry, the number of paintings which he executed was very great. They are, it is true, of very unequal degrees of merit, but all bear the marks of genius: his expression is generally good, his colouring true and glowing, and his touch light and firm; his draperies too are well cast, broad, simple, and in natural folds. When he introduces architecture into his backgrounds, it seems to have been designed after Greek or Roman models. He had the misfortune to become blind several years before his death; but in this state he was surrounded by artists and lovers of painting, to whom he was fond of communicating instruction. His paintings were published in a treatise on the art of painting, which goes by his name, was not actually written by him, but compiled from his observations during his blindness, and published by a society of artists after his death, which happened in the year 1711, in the 52d year of his age.

'It would be unjust,' says Fuseli, 'not to mention Lairesse as an etcher, an art in which he had few rivals, whether we consider the decision, clearness, strength, or facility of his tool.'

LAITY, persons not clergy; that is, the whole population except those who are in holy orders. All the lexicographers, we believe, agree in deriving it from the Greek word λαός (laos), the people. A Layman is one of the Laity.

The term lay except when the mind is directed to the distinction of the two classes.

LAKE, GERARD, first Viscount Lake, the second son of an ancient family, was born July 27, 1744. Having entered the army at the early age of 14, and made his first campaigns in the Seven Years' War, he served afterwards in the American War, in Holland with the Duke of York in 1793, and having attained with credit to the rank of general, was appointed to the chief command in Ireland during 1797-8.

In 1800 he was sent as commander-in-chief to India, during the Marquis Wellesley's government. On the breaking out of war with Seindhub, in 1803 [Mahrattas], General Wellesley being charged with the conduct of affairs in that quarter, Lake is sent out, and engaged in the field in the north of Hindustan. August 28, he crossed the northwestern frontier of Oude, into the Mogul territory, and after taking by storm the strong fort of Alighur, arrived within six miles of Delhi, September 11. The Mahrattas, in the meantime, having defeated battle of Drinby, 1803, Lake led his troops at once to the attack. The enemy's position was strong; and a repulse seemed likely to ensue, when Lake, by a well conducted feint of retreat, lured the Mahrattas from their entrenchments, and then resuming the charge. He entered Delhi the next day: and the Mogul emperor, Shah Allum, the nominal sovereign of India, old and blind, who had been but a puppet in the hands of the Mahrattas, gladly disavowed the misrepresentation and demanded the cession of the city. Lake next marched upon Agra, which was taken after a short resistance. A fresh descent of the Mahrattas recalled him towards Delhi; and on the 1st November he was again, to his infinite regret, compelled to evacuate the city.

Lawrence. By this series of successes the whole of Scindia's possessions north of the Chumbul River fell into his hands; and in reward General Lake was raised to the peerage, September 1, 1804, by the title of "Lord Lake of Delhi and Lawasree, and Aston Clinton, in Bucks."

In 1804-5, Lord Lake again took the field in the same part of India, against Holkar. In these campaigns he was less uniformly and brilliantly successful: still he had reduced a formidable enemy to his power a - The Marquis Cornwallis as governor-general substituted a peaceful policy for that system of conquest which Lord Wellesley had so energetically pursued. Lord Lake returned to England in September, 1807, and was immediately made Viscount and raised to the peerage, February 28, 1808. (Collins's Peerage; Hist. Brit. India.)

LAKES are in the land what islands are in the sea: they are surrounded on all sides by land, as islands are by water; and differ from lagoons in their origin, and from tanks and reservoirs by their being naturally formed, whereas the latter are the works of man. From ponds and pools it is not so easy to distinguish them, it being difficult to assign a fixed line between a large pond and small lake. The feature by which perhaps they would be best distinguished is this, that a lake is fed by streams either flowing at the surface of the soil or subterranean, while a pond, though large, is only the accumulation of rain-water in some hollow. Thus ponds are usually dried up in hot weather, while true lakes are only temporarily diminished by heat.

Lakes have sometimes been divided into fresh-water lakes and salt-water lakes; though here again it is not easy: to draw the line between the two, as from the freshest to the saltiest the degrees of saltiness are very various. The principal difference in lakes is: some have no apparent affluents nor outlet, others have affluents without any visible outlet, some have an outlet without any visible affluents. If a lake has a visible outlet, it is natural to suppose that the lake has been formed by the accumulation of waters in some hollow, and that these waters have flowed outwards by natural channels

Lakes without apparent affluents or outlets are comparatively small, and yet they are, relatively speaking, more permanent than larger lakes, because, being fed chiefly by the rains and melted snows, they have less chance of being dried up. Many of them are quite dried up towards the end of summer: they become then shallow, and yield an considerable profit. Their saltiness is not easily accounted for the more particularly as among and close to those that are salt there are many whose waters are quite fresh. The phenomena of the mineral salts on the waters of the lakes is very various, and no satisfactory theory has perhaps yet been offered. Small lakes of the kind of which we have been speaking, that is to say, such as have neither affluents nor outlet, sometimes occur in hollows resembling the craters of dead volcanoes: such lakes are called by the French Dolomieu, Spallanzani, and others, maintain the existence of lakes in such craters, M. Desmarets, upon apparently
very good reasons, absolutely denies the possibility of lakes existing in the eratess of extinct volcanoes. The celebrated Lake of Avernus is, according to Ferber and Breislak, situated in an ancient crater. The lake receives effluents without having any visible outlet, the largest is the Caspian. The Aral, and the Dead Sea, or Lake Asphaltites, are also examples of this kind of lake, which is very common in Asia. Some of them are of vast extent, such as the lake Tennessee. It is subject to recurrent times of overflowing and submergence, due to the want of an outlet; but on the other hand, the Durrah in Sogdistan, which receives the Helmund and has no outlet, is perfectly fresh; and on the other, there are many salt lakes which have no affluents. Hence the meaning of lakes must have some other cause. The question has sometimes been asked, what becomes of the excess of water brought into lakes having no outlet? Halley thought evaporation was all-sufficient to carry it off, and his opinion is highly plausible. If however it shall be found by actual experiment that a greater quantity of water is brought into a lake without apparent issue than can be carried off by evaporation, the natural conclusion will be that the surplus is lost by infiltration or subterranean drainage. Several of our great lakes have formerly had outlets, but water has ceased to flow from them, because the lakes have sunk in consequence of receiving now a much smaller quantity of water than formerly. There are many lakes in Europe at the present day whose outlets were formerly abundant. They are the Salzkammergut of Styria, and Neusiedel in Hungary. The extent of surface of the former is very great compared with the quantity of water which it receives, so that the evaporation is rapidly diminishing the lake, and the river Schlo, which used to carry away superabundant waters and pour them into the Danube, is now nothing more than a slip of a brook; and as for the Lake Neusiedel, it appears formerly to have communicated with the Danube by the Raab, into which it emptied its waters; but they are said to have united for a longer time than by a swamp. The Aral also, it is generally believed, was communicated with the Caspian.

Those lakes which have an outlet without any apparent effluent are fed by subaqueous springs, which, bursting out in a hollow, must fill it up before the waters can flow off in a stream. These lakes are generally situated at considerable elevations above the level of the sea. Thus there is one on Monte Rotondo in Corsica, at an elevation of 9069 feet. There are many others. In Asia, there is the Aral, and the Volga, for instance, springs from such a lake in the government of Tver in Russia.

Lakes which receive one or more tributary streams and have a visible outlet for their superabundant waters are the occasion of a phenomenon seen in the interior of Europe and on the south side of the north of Italy, the lakes Ladoga, Ogneva, Neusiedel, and Ilmen in Russia; the Saima in Finland, the Vieuw in Sweden, the Enna in Lapland, &c. In Asia are the Nor-Zaissan and the Baikal, &c. In North America, Lake Superior, Lake Huron, Lake Erie, and Lake Michigan are examples of this kind of lake; each of them receives several affluents; and the grand outlet of the whole is the river St. Lawrence.

The lakes are subject to different circumstances: some from the sinking of the soil by the falling in of subterraneous caverns—such is the supposed origin of the Baikal; others are caused by earthquakes—such a lake was formed in the province of Quinsai in 1727; some by the fall of mountains, as the Ochsen-bach in the canton of Berne; or by lava currents damping up the stream, as the lakes Aidat and Cassiere in Auvergne, in France. Many are supposed to be the remains of the universal ocean which once covered the whole face of the earth; and others are supplied with fresh from their receiving constant supplies of fresh water while the salt was continually let off by their outlets. Almost all lakes are in process of diminution, although some are not even now apparent. The decline is not always perceptible; but the affluents is imperceptibly filling up the basins; and if regular observations were made, many lakes which owe much of their prosperity to their affluents would find the time fast approaching when these affluents of water will become mere pestilential marshes.

Certain lakes exhibit remarkable phenomena; thus some have floating islands in them, as is the case with a small lake near St. Omer. The lake Garda, in Prussia, has a floating island, on which a hundred head of cattle may be seen passing. In the lake Kolk, in Osnobrick, there is a floating island, on which fifteen horses. Some of these floating islands sink and rise again; thus in the lake Rîlang in Smoland, a province of Sweden, there is a floating island which appeared and disappeared ten times in a month. The floating islands are found in East Gothland and many other places. Some subterranean lakes are supposed to have become so by the formation and subsequent fixing of floating islands, which successively uniting have finished by forming a solid crust over the water, and the water which is beneath it is fed by springs not visible on the surface.

Some lakes have a double bottom, which rising and sinking alternately changes the apparent depth of the lake, there is a lake of this kind at Jemtia in Sweden.

Some lakes are said to have no bottom; but this is an impossibility: the fact is, that the sound does not reach the bottom, either for want of sufficient weight of lead or length of line, or else it is carried away by under-currents.

In Poland there exists a lake said to render brown the skin of those who bathe in it. Certain mineral waters impregnated with sulphuretted hydrogen are well known to change from white to brown the skins of those persons who have been under the use of metallic medicines, or who use metallic cosmetics, and some such circumstance may be the case with the lake in question.

Some lakes are intermittent; the most remarkable of this kind are those of Cirknit in Illyria and Kaut in the northern part of Bohemia. There seems to be a sort of swells in the lakes, which oscillate between the years 1636 and 1754. A number of natural siphons, upon the same principle as intermittent fountains.

The Lake of Geneva is subject to a subaqueous wind, called the Vaudion, which rising to the surface, produces an agitation of the water which is sometimes dangerous to the navigation of the lake. Near Boleslaw in Bohemia there is a lake of unknown depth, from the bottom of which there rise, in winter, such violent puffs of wind, that they are said to be able to carry up into the air several hundred pounds weight. The sudden escape of gases formed in the bowels of the earth, and perhaps the air forcibly driven out from caverns by the water rushing into and filling them up, may be among the causes of this remarkable phenomenon.

The Stieches are a phenomenon which has hitherto been observed only in the Lake of Geneva and some other of the Swiss and Italian lakes, though it is probably common to many others. It is observed in spring and summer alike; the water, something like a tide wave, rises occasionally to the height of five feet. Its cause is not exactly known, though it is most probably due to a local and temporary change of atmospheric pressure. Water-spouts are also seen on lakes and rivers, and they have been observed on the lakes of Zürich and Geneva.

Certain lakes seem to be placed in the immediate neighbourhood of centres or foci of electrical attraction; thus in the lake Huron there is a bay over which electrical clouds are perpetually hovering. It is affirmed that no person has ever traversed it without hearing thunder. The proximity of this lake to the American magnetic pole, that is, to the spot where the magnetic intensity is greatest, not where the dip is greatest, may perhaps have some influence in producing so remarkable a phenomenon.

Near Baja in Portugal there is a lake which is said to announce the approach of a storm by a tremendous rumbling. In Siberia also, near the little river Orichat, which flows into the Abakan, there is, according to Pullas, a lake called the Roaring Lake, from the dreadful noise it makes, and which announces internal revolutions similar to that which occasioned the rupture of the dykes of the Lake Censinot in Durov. The same disturbance was repeated when ever the waters of these sources coming into the lakes are exposed to the air and lose their excess of acid. There is an interesting phenomenon presented by the Lake of Zürich, called the flowering of the lake. When this takes place the surface of the water is seen covered
with a yellow scum or froth, which, upon examination, is found to be a very minute vegetation.

Other phenomena presented by lakes, but the most singular of them all perhaps is the attractive force of the mud at the bottom of some lakes, which is such that boats can hardly make their way through the water. This one or two feet deep, but is made so visible when you approach the opposite shore. I have often plunged into it a pole twelve feet long without feeling the least case as if I were going through a bed of sand. Nevertheless this mud has a sort of magical effect upon the boats, which is such that the paddles can with difficulty urge them on. This effect is not perceptible on the south side of the lake, where the water is less deep, but is more noticeable when you approach the opposite shore. I have been assured that loaded boats have often been in danger of sinking, and could only be extricated by being towed by lighter boats. As for myself, I have never been in danger of founders, but I have several times had great difficulty in passing this spot with six stout rowers, whose utmost efforts could scarcely overcome the attraction of the mud. A similar phenomenon is observed on the lake Saginaw, whose bottom attracts boats with such force that it is the greatest difficulty that a loaded boat can be made to advance; fortunately the spot is only about 400 yards over. Captain Back has confirmed the above by his late observations.

It is easier to vary much in temperature, transparency, and in the colour of their waters. Lakes fed by the water of melted snows in summer are generally much colder than would be thought conformable with the season; but the difference is principally owing to the depth of the water, and more especially when you approach the bottom, by reason of their greater density. Some lakes never freeze, which is owing to their great depth. This is the case with Loch Ness in Scotland, which is 810 feet deep in the deepest part. Lakes are not subject to tides; at least the amount of tide, so far as observation goes, seems not to be ascertainable.

The remarkable transparency of certain lakes is truly astonishing; thus the waters of Lake Superior are so pellicled, that, according to Mr. Heriot, the fish and rocks may be seen at a depth incredible to persons who have never visited these regions. The density of the medium on which the vessel moves appears scarcely to exceed that of the atmosphere, and the traveller becomes impressed with awe at the novelty of his situation. Elliot, in his "Letters from the North of Europe," says, 'Nothing appears more singular to a foreigner than the transparency of the waters of the Norwegian lakes. At the depth of 100 or 120 feet, the surface of the ground beneath is perfectly visible; sometimes it may be concealed by a pellicle of shell, sometimes only sprinkled with them; now a submarine forest presents itself to view, and now a subaqueous mountain,' and Sir A. de Capell Brooke observed of the same lakes, 'When a boat passes over a shallow lake, the bottom is seen, and the visual illusion is so perfect, that one who has gradually, in tranquil progress over the surface, ascended wondering the rugged steep, shrinks back with horror as he crosses the vortex, an impression that he is falling headlong down the precipice.' In the lake of Vänern in Sweden, it is said a farthing may be seen at the depth of twenty fathoms.

With regard to the colour of lakes, it may be observed that it is sometimes very difficult to account for the tints of many of them. The colour of these, the shadows and reflected colours of surrounding bodies, subaqueous vegetation, springs, and many other circumstances, affect the colour of lakes.

Lakes perform a very important function in the economy of the earth. Rain does not always fall, and were it not for lakes, both visible and subterranean, those great natural reservoirs, the greater number of rivers would be dried up in summer, and canals could not have a constant supply of water. The precipitation and humidity which these lakes furnish are essential to their evaporation, and consequently favourable to the vegetation in their environs. Many lakes are of sufficient extent to be navigated, and thus facilitate commerce and industry. The fisheries of some are very valuable, as the salmon is caught by the salt of their environs. Finally, they most agreeably diversify the surface of the earth by the various appearances which they present of the beautiful and the sublime.

LAKES. — LAKES are pigments prepared by combining vegetable or animal colouring matter with earths or metallic oxides; thus verdigris (Acidum Cupreum, Turpentine, and Salt-Acid) produces the green of woods and roots; and violet, when added to a solution of alum, produces the blue of the Willamette. If the alum be precipitated in combination. Indeed the affinity of some kind of colouring matter for alumina is sufficiently strong to cause the formation of a lake without the intervention of an alkali, and merely by mixing aqueous solutions of the colur and the alum.
reputation as an astronomer was perhaps greater than that of Delille, and as both were fully competent to appreciate the ability of Lalande, there arose between these professors a sort of emulation as to which should contribute most to his future eminence. But notwithstanding the ardour with which they contended, the study of the law was not altogether neglected. At the age of eighteen he received from the judicial authorities of Paris the title of Advocate, soon after which he received permission from his parents to return to Bourg, where they were anxious that he should practise his profession for some years. A fortuitous circumstance induced them to abandon the plans which they had formed for the promotion of his welfare and happiness.

In 1758, delike to take his departure for the Cape of Good Hope, with a view to the more exact determination of the moon's parallax, had called upon the astronomers of Europe to forward the object of his voyage by making observations at their respective observatories, similar to those which he contemplated making himself on the Cape. The favourable position of Berlin, which has nearly the same longitude, while it differs in latitude by nearly the fourth part of the earth's entire circumference, suggested to Lementonier the peculiar advantages which would accrue from observations made at the observatory of that city. But it so happened that there were no instruments of any value at that observatory, and no person of any calibre had been appointed to its superintendence. Lementonier, who was aware of the dire revolution which had lately taken place in Berlin, recommended the academy to confide the responsibility of making the necessary observations. When Maupertuis presented Lalande to Frederic, the latter, as might have been expected, expressed his surprise at receiving so young a professor—professor for Lalande was now in the eighteenth year—yet, after many flattering expressions, he gave orders that every thing should be done which could lead to the attainment of the object in view. Here, during the remainder of the year and the early part of the next, Lalande passed most of his nights in the observatory; his evenings, in studying the mathematics under Euler; and his days, in the society of Maupertuis, Voltaire, D'Ar- sonval, and La Mařie. After completing his observations, on the return of the academy to Berlin, he received a commission from the Royal Academy of Berlin, to return to Paris, where the Royal Academy expressed their unqualified approbation of his conduct, and immediately elected him a member of their society.

From his election till within a few years of his death, Lalande contributed regularly to the Transactions of the Academy, and from this time his popularity as an astronomer may be dated.

The expected return of Halley's comet had led Clairaut to take up the subject of the perturbations of which it would be subject. Lalande, with the assistance of Madame d'Epoque, supplied him with all the numerical computations of which he had need; and when the appearance of the comet was expected, it was to them that he turned. The comet which appeared in 1759, appeared to Lalande a translation of Halley's planetary tables. In 1760 he was appointed editor of the 'Connaissance des Temps,' in which he introduced many important alterations, and gave to it the form which it has since retained. In 1762 he succeeded Delille as professor of astronomy to the College of France, and continued to discharge the duties of his office with zeal and industry for more than forty years. From among his pupils he was in the habit of selecting those who manifested peculiar propensity for the science, and he was in the habit of writing to his house, where he perfected them in the calculations necessary for applying their theoretical knowledge to objects of utility. His residence was in fact a school where many of his pupils not only received a scientific education, but likewise board, lodging, and other necessaries; and from whence they afterwards removed either to conduct some observatory, to fill an astronomical lecturership, or as professors of navigation and naval astronomy on board sail ships in the royal service.

In 1764 he published his large treatise on astronomy, which he afterwards extended to four volumes 4to. Before the appearance of this work there existed several able treatises on Navigation, by Caillet, Cassini, and Clairaut; but these contained little or no information as to the practice of astronomy. To supply this omission was the object of Lalande. The work contains many biographical and historical notes, which will always be interesting, and the results of numerous observations to which it will always be useful to recur.

In 1772 he published his 'Account of the Transit of Venus,' observed 3rd June, 1769, which was drawn up with considerable labour from the communications of those persons who, at his recommendation, had been sent by several of the European governments to different parts of the globe, in order to observe the phenomenon.

Lalande died at Paris, 4th April, 1807, in his 75th year. As an observer, an author, and a tutor, he undoubtedly did much for the promotion of astronomy, but looking to the state of the mathematics at the time in which he lived, his knowledge of them appears to have been very limited. The candour and warmth of his disposition gave full relief to those who were at his dislike. He regarded concealment of any kind and under any circumstances as disreputable to a nobleman; and acting up to this opinion, he invariable expressed his sentiments without the slightest reserve, even when by so doing he prejudiced his own interests and those of his dearest friends. His love of truth, and the boldness with which he attempted to subvert all systems and opinions which did not accord with his own, and which sometimes partook rather of a spirit of fanaticism than of pure philosophy, excited against him a crowd of detractors and enemies. The extreme irritability of his temper led him on several occasions to acts of ingratitude towards Lementonier, his early tutor and friend, who, to use Lalande's own expression, refused to see him during an entire lifetime. Nevertheless, the respect of the public, who, in his native town was such that he made a point of visiting it every alternate year during the college vacation; and upon those occasions he gave public lectures, founded an Académie Society, and neglected nothing which might inspire their confidence and attachment. His friendship was so great that he frequently attended the devotions of his mother, although the creed which she had so zealously endeavoured to inculcate had been greatly modified, if not altogether eradicated, by his intercourse with Voltaire and others while at Berlin.

To conclude, although his moral character is not altogether irreproachable, he was always ready to patronize the needy votary of science, and he would advocate the cause of a friend at the risk of his own personal safety.

The following is an extract of his own writings and publications:

'Navigation, its History, Theory, and Practice,' Paris, 1793, 4to. — 'The Physician's Almanack,' Paris, 1800; 'The Geographical and Chronological Almanack,' 1799-80; 'Astronomy,' 1st edition, 1764; 2 vols. 4to.; 2nd ed. 1771-81, 4 vols. 4to.; 3rd ed. 1792, 3 vols. 4to.; the same work abridged, Amsterdam, 1774; Paris, 1775-1795, 5 vols.; 'Astronomy for Ladies,' last edition, 1824; 'Astronomical Biography,' 1803, 4to. — 'Treatise on Canals in the French Academy,' 1778; 'On the Theory of the Solar and Lunar Tides,' 1778, fol.; 'Treatise of Venus,' 1764, 4to. — 'Description of a Machine for dividing Mathematical Instriments, translated from the English of Ramsden,' 1790; 'A Discourse tend- ing to prove that the planets are fitted for the establishment and security of empire,' to the Academy of Mar- seille awarded their prize, 1757; 'Dissertations on Capillary Attraction,' 1770; 'Ephemeris of the Heaven,' 1773-1800; 'Exposition of Astronomical Calculations,' 1762; 'French Celestial History,' 1801; 'Letter to Cassini on the subject of Saturn's Ring,' 1773; 'Memoir on the Interior of Africa,' 1795; 'Reflections upon Comets which may approach the Earth,' 1773; 'Astronomical Tables for the Meridian of Paris,' 1779; 'Portable Logarithms,' 1802; 'Treatise on the Tides,' 1781; 'Journey to the Moon Blanville,' 1789.

The whole of the papers of Lalande in the Memoirs of the Institut were contributed between the years 1751 and 1806. Of these the most important are: 'On the Parallax of the Moon, and its Distance from th' Earth,' 1752-55-56-57; 'On Secular Equations, and on the Mean Motions of the Sun, Moon, Saturn, Jupiter, and Mars,' 1757; 'On the Theory of Mercury,' 1766-67-68-66; 'On the Solar Spots and Rotation,' 1756-78; 'On Herschell's Planet,' 1784-97; 'On the Determination of the Position of 8000 Northern Stars,' 1780-90. He likewise superintended an edition of the 'Astronomie' of Lacaille, Bouger's 'Navigation,' Flamsteed's 'Celestial Atlas,' Fontaine's 'Plurality of Worlds,' and other works. With Laplace and others he edited the latter volumes of Montu- cla's 'History of the Mathematics.'

(Delambre, Eloges de Lalande, in the Memoirs of the Institut, 1807, and notice of his life in the 'Bibl. Univers.')
Hutton's Mathematical Dictionary; Quercard's Dictionnaire Bibliographique.

LAMA. [Lama.]

For, by the way, LAMA, is the name given to the Buddhist religion in Mongolia and Tibet. Lama in these languages properly means priest, but is only applied to those persons who enjoy the higher dignities of the Buddhist hierarchy. It first became an illustrious appellation after the death of Chag Khan, and his successors elevated the individual who pretended to be the successor of Buddha to the dignity of Dalai Lama. [Dalai Lama.]

The name was first confined to eight subordinate chiefs, who were elected to act as his counsellors, but was afterwards extended by the Dalai Lama to all other priests who possessed a certain degree of authority.

The title of Lama is given to the head of every monastery, and every Lama is considered a vicar of the deity, and required to cultivate science to all his subjects, like the Dalai Lama himself. The opinions of this sect are freely developed in the article Buddha; and their religious rites and ceremonies resemble those of the Bonzes in Japan.

LAMANTIN. [WALKER.]

LAMARCK, JEAN BAPTISTE PIERRE ANTOINE DE MONNET, CHEVALIER DE, member of the ancient Academy of Sciences, and afterwards of the Institute. This celebrated botanist and zoologist was born 1st August, 1744, at Picardy, in the family originally destined for the church, and received his education at the Jesuits' College at Amiens, where he was noted for that assiduous application to study which had so great an influence over his future career. Being desirous however of following the patterns of history, at the age of seventeen he left college and entered the army, in which he served under Marshal Broglie in the long war against the English and Dutch. He greatly distinguished himself by his bravery, but accident turned his talents into another channel; for, being wounded and suffering from ill health, he was obliged to quit the military service.

He then went to Paris to study medicine, but it does not appear that he ever did anything in that science, for we find him paying all his attention to the sciences of philosophy, and literature; and in 1778 he communicated to the Academy of Sciences some observations on the laws which regulate the formation and dispersion of crops. The Academy engaged him to prosecute his researches on this subject, but he now commenced another branch of science which conducted him rapidly to celebrity, namely botany. At this time Bernard de Jussieu was engaged in arranging the plants of the Jardin du Roi, according to their natural affinities; and at the same time he published his important work on Linnaeus, which was at its height of popularity. M. Lamarck undertook to form a new arrangement, which should be intermediate between the others, selecting the most exactly refined parts of them. He drew from the system of Tournafort, which formed the principal characters of his classification, and on the modifications and form of the corolla. Lamarck thus constructed a new method of classification, according to which he arranged all the known species of plants indigenous to France. He named this work the Flore Françoise, and presented it to the Academy of Sciences, who were highly pleased with it. The work particularly attracted the attention of Buffon, who had sufficient influence to get it published at the expense of government for the benefit of the authors, whose circumstances at that time were narrow. The Flore Françoise appeared in 1786, bearing the date of 1778, in 3 vols. 8vo. In 1779 Lamarck was elected a member of the ancient Academy of Sciences. It was in 1788 that he was named by the king for the chair of M. Vaubuisson, and in the following year he was appointed professor of the king's household in the Institute, M. Latreille. His eyes becoming affected during the compilation of his last work, the Mémoires sur les Coquilles, published in the Annales du Muséum, he was succeeded by M. Valenciennes, and in the remaining classes by his eldest daughter Madeleine, the wife of Lamarck. This celebrated man died in Paris, in December, 1829, at the advanced age of eighty-six.

Lamarck is chiefly known in this country by his excellent arrangement of the Castoreum Mollusque, which department he made so great a change, that he laid comparatively little to be done by those who come after him. Mr. Swainson observes that 'the system of Lamarck in regard to the soft or invertebrate animals, deserves peculiar attention, since he was the first to base his unrivalled perception of natural affinities, obtained an indistinct view of that circular arrangement which was more clearly and fully developed by his successors in the natural class of insects, particularly by Mr. MacLachlan. But though we admire the talents, judgment, industry,
and extensive knowledge which this able naturalist possessed, we must regret the absurd and fanciful theories which he introduced into his writings and lectures. He was fond of inventing various theories, from the lowest to the highest forms, which were supposed to explain microscopic particles. This may be called the theory of metamorphosis, according to which a formative substance is held to exist, but is allowed to change its form in order to suit the exigencies of various doctrines. The doctrine of spontaneous generation... of his theories, it was only necessary to suppose a soft gelatinous mass of amorphous but organic matter to become traversed by surrounding fluids in order to produce a permanent living organism or animal. If this were true, it became of the type of vegetable life, if it possessed that property, animal. Afterwards he pretended that use and circumstances determined the existence of new organs, which rendered the being perfect or less perfect. These principles are only a continuation of those which Maillet and Bulloz had before promulgated.

In his great work he adopts the same theories; he divides the human kingdom into three classes, the 'Apathiques,' the 'Sensibles,' and the 'Intelligentes,' and after having followed the order of progression by which nature conducts the different beings to perfection, he regards intelligence solely as the expression of the will of the supreme being. His theories are inconsistent even with his own words, and are almost too absurd to need refutation. He wrote many other works and papers. (Biographie des Hommes Vivants; Biographie Medicale, in the Dictionary des Sciences Medicales, &c.)

LAMB, CHARLES, was born February 18, 1775, in Crown Office Row, Inner Temple. His father was clerk to Mr. Sal! one of the benchers of the Inner Temple, and a master and servant (the latter under the name of Lovell) have received honorable commemoration in the 'Essays of Elia.' Born in the Temple, Lamb was educated at Christ's Hospital. Thus his early life was spent in the most old-fashioned and busy parts of London; a circumstance which probably exercised a strong influence over his character. London, and what he had seen there, was the model of his first essays, which indicate a lively power of relishing the beauties of intimate nature (see for example his Letters, vol. i., p. 221).

A relish was as of a luxury, to be enjoyed distantly, and at intervals; his cravings were for the excitement of society, its splendorious, oddities, and squalidness of the metropolis. His feelings breaks out everywhere in his 'Letters.' 'I shed tears,' he says, 'in the motley Strand, for fulness of joy at so much life.' (See vol. i., p. 182, 213, &c.)

Lamb was driven for subsistence to the ungodly labors of the newspaper office. He was a clerk in the accountant's office in the India House, in which, rising in place and salary, he continued a regular laborer till March, 1825, when he was allowed to retire upon a handsome pension.

Lamb's first appearance as a writer was in a small volume of poems published jointly with Coleridge and Lloyd. This association brought on the wrath of the 'Anti-Jacobin,' as did his dranm in the government place. The Excisemen, of the 'Edinburgh Review.' An increasing relish for our older poets, and for those who in our own day have sought inspiration from them, or from nature herself, has caused the beauty and feeling of Lamb's poems to be better appreciated. Still his popularity depends more on his prose writings; and especially on his 'Essays of Elia,' which were begun in the 'London Magazine,' and collected afterwards in two small volumes. They abound in references to the author's character, history, and habits; to his acquaintance with the palaces of literature and the Recorder. Sergeant Talfourd, present a minute and most interesting picture of a mind quaint, humorous, full of high and lovely thoughts and feelings, and affection for all things animate, and more mindful to the weaknesses of others than its own frailties. The praise of the 'Task' is an exquisite sketch, by himself, of his own character.

His works are contained in two vols. 12mo., 1818, 'Essays of Elia, Allium Verses,' &c., 1830; 'Specimens of English Dramatic Poets who lived about the time of Shakespeare,' 1808. They have recently been republished by Mr. Moxon, the poems in one, the prose in three volumes. The 'Farewell to Tobacco' and the 'Essay on Roast Pig' are admired by the specimens, in verse and prose, and in widely different styles, of his prose essays. 'Essays of Elia, Thirty-five Years Ago'; 'The Old Benchers of the Inner Temple;' 'Blaikewoore,' &c., show his power of throwing a charm round things indifferent in themselves, but endeared to him by early association. As specimens of his criticism we may instance his essay 'On the Genius of Hogarth,' and 'On the Tragedies of Shakespeare.' His serious is no less admirable than his humorous vein, and is always pregnant with some healthy and benevolent moral. We doubt whether his works, if collected, will not show us there was an original quaintness in his character, nourished by his habits and studies, which those only who have something similar in their temperament and pursuits will fully relish. He however had an excessive affection for the affectionate admiration of a large and varied circle of friends, and have with them encountered and surmounted much ridicule, he will hold an honourable place in our literature along with Coleridge, and others yet living, whose friendship, in life, he was the most precious, and with whom he would be best pleased to be associated in fame.

LAMBALE. [Cortex du Nord.]

LAMBARDE, WILLIAM, an eminent lawyer and antiquary, was the son of John Lambarde, an alderman of the City of London, and was born in 1484. He died in 1556. After many years we know nothing, till in 1566 he entered at Lincoln's Inn as a student. Here he studied under Edward Soul (the brother of Dean Soul), a person eminent for his knowledge of antiquities and of the Saxon tongue, from whom Lambarde imbibed the notion that an acquaintance with the customs and jurisprudence of the Saxon times would be useful to him in his profession. The first fruits of his studies appeared in a collection and translation of the 'Decretals of Gregory.' In 1518 he was appointed retainer to the Duces of Anglorum Legibus Libri, 4to., 1568, afterwards republished in 1644 by Abraham Wheloe, with Bede's 'Ecclesiastical History.' In 1570 we find him residing at Westenham, near Kirlington in Kent, where he was a clerk in the court, which he was possessed, and where, without giving up his profession of the law, he devoted much of his labors to the service of the county. His 'Perambulation of Kent,' finished in 1570, was published in a small quarto volume in 1576. In 1574 he founded an hospital for poor persons at East Greenwich in Kent, said to have been the first founded by a Protestant. In 1578 he was admitted a bencher of Lincoln's Inn, and in 1579 was appointed a justice of the peace for the county of Kent, an office which he not only performed with more than usual skill, but endeavored to explain and illustrate for the benefit of other magistrates in his 'Eirenarchia, or the Office of the Justices of the Peace,' in four books, 4to., 1561; between which year and 1592 his 'Essays of Elia,' as it was reprinted eleven times. He also published a small treatise on 'The Duties of Constables,' &c., 8vo., 1552, which was reprinted six times. In 1592 he was appointed a master in chancery by Sir John Puckering, lord-keeper, and in 1597 keeper of the rolls and house of rolls in Chancery, under Sir Thomas Bonynge, lord-keeper, and in 1600 keeper of the records in the Tower. He died at his house at Westcombe, August 19, 1601, and was buried in the parish church of East Greenwich. The church, on which he had done so much, was removed to the parish church of Sevenoaks in Kent, where is still the seat and burying-place of his family. Lambarde's 'Archeoion, or a Discourse upon the High Courts of Justice in England,' was not published till 1635 by his grandson Thomas Lambarde.

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LAMBERT, JOHN, is said to have born of a good family, probably about 1620, and to have been educated for the bar. On the breaking out of the contest between the king and the parliament, he abandoned the study of the law, and joined the parliamentary army, in which he is mentioned as holding the rank of colonel at the battle of Marston Moor (2nd July, 1644). After distinguishing himself at the battle of Worcester in 1651, and on other occasions, and rising to the rank of major-general, the appointment of Fleetwood on the death of Ireton (November, 1651) to the chief command of the forces in Ireland produced an alienation between Lambert and Cromwell which was never wholly healed, although he was one of the officers whom Cromwell summoned in June, 1653, to take upon them the settlement of the government, and he was in May, 1655, appointed by the Protector one of his elevens, as they were styled, or commander of the military forces in the several districts of the kingdom. Lambert's district comprehended the five northern counties of Durham, Cumberland, Northumberland, Westmoreland, and Yorkshire. He took little part in public affairs, however, and the portion of the Protectorate which was the part of Lambert's career is comprised within the space of about twenty months that elapsed between the death of Oliver Cromwell and the return of the king. He became the soul of the confederacy of discomfited officers, which had after the meeting of his first parliament, in January, 1659, was formed against the new protector Richard, and which speedily effected the deposition of that feeble and unambitious personage. [CROMWELL, RICHARD.] Lambert was now the best of the archbishops of Canterbury, the extreme republican and Independent party. On the breaking out of the Royalist insurrection in July, he was sent by the Rump Parliament to suppress it, a business which he performed with extraordinary vigour; but immediately after his success he turned round upon the parliament, and, on its resistance to his demands, dispersed it by military violence, 13th October. The part taken by Monk however, and the falling away of their partisans on all hands, soon reduced Lambert and the cabal of officers, or Committee of Safety, as they called themselves, to extremities; and by the beginning of January, 1660, having been deserted by almost the whole of the force with which he had been left in the north to oppose Monk, he was seized by orders of the restored parliament and committed to the Tower. On the 9th of April following he made his escape from confinement, to the infinite consternation of Monk and the Council of State; but the activity of the latter recovered his position. The 22nd of the same month, when he was already at the head of a considerable body of horse, the greater part of which however deserted him at the critical moment. He was excepted from the Act of Indemnity passed after the Restoration; but although he was in June, 1669, brought to trial before the Court of King's Bench along with Sir Harry Lane, he was, after being found guilty, reprieved at the bar, the distinction made between the two prisoners being explained by the judges to the amount of his paratively dutiful and submissive behaviour in the course of the trial. He was eventually banished to the Island of Guernsey, where he lived for above thirty years.

LAMBERT, a large parish, a portion of which, together with portions of the parishes of St. Giles's, Cumberwell, and St. Mary, Newington, constitute a parliamentary borough. It is in the eastern division of the hundred of Brixton and county of Surrey. It is situated on the right bank of the river Thames. The name is of Saxon origin and signifies, according to Camden, 'a dirty station.' The Saxons had a mansion here, where they occasionally resided. The palace of the archbishop of Canterbury, which is situated near the river, exhibits specimens of the architecture of various epochs, chapels and crypts which were replaced by archbishop Boniface as early as the year 1263, but the other parts of the building are of more recent date.

Within the last five or six years the palace has been repaired under the direction of Mr. Edward Blore. In the dining room the statues of St. Edmund and St. Etheldreda have been added, who have filled the site from Land down to the present time. The library occupies the four galleries over the cloisters, which form a small quadrangle. During the civil wars the greater part of the books were removed to the university of Cambridge, and the others were dispersed among private owners. After the Restoration exertions were made to effect their complete restoration, which were in a great measure successful. At the present time there are about 25,000 volumes, some of which are of great rarity, and the manuscripts are valuable, and those which contain the registers of the see of Canterbury are in an excellent state of preservation. Before the Reformation the archbishops had prison here for the punishment of ecclesiastical offenders, and it was here that Elizabeth confined her mother-in-law, Mary of Guise (1561). In the year 1831 the parish contained a population of 87,856 persons, having been increased during the previous ten years by 30,218 persons. The manufactures are numerous and important, comprising those of soap, white and red lead, plate-glass, patent shot, besides extensive breweries, distilleries, &c. There is a parochial school erected in 1829, the Philanthropic Society's school, another belonging to the Benevolent Society of St. Patrick, and many other charitable institutions.

Lambeth was constituted a parliamentary borough by the Reform Act, and returns two members.

For an account of the antiquities of the parish the reader is referred to the Bibliotheca Topographica Britannica, vol. ii. and to the most important works of the historians.

LAMBRUS, Leech's name for a genus of brachyurous crustacean decapods. [PARTHENOPIANS.]

LAMEGO, a town of Portugal in the province of Beira, situated about two miles from the mouth of the Douro, and at the foot of the Serra de Peniade, which is an offset of the ridge of Alcoia. It is a bishopric, has an ancient cathedral, built by Count Don Enrique, father of Alfonso I. several other churches and convents, an hospital, and 500 distilleries, and a moiety of the county of Peniade, which is a half of a bill; the lower part contains one wide and nearly level street: the cathedral and the episcopal palace and gardens are in the upper town. Lamego is the chief town of the counties of the same name, which extends from the Douro southwards to the Vouga, which divides it from the counties of Viseu. This district is hilly, and contains several valleys, through which various streams flow northwards into the Douro. The Serra de Montemuro, which joins the Serra de Marom on one side and the Serra de Alcoa or Camula on the other, crosses the country from north-east to south-west. The county produces abundance of good wine, which is sent to Oporto, under the name of Alto-Douro wine.

It was at Lamego that the first Cortes of Portugal were assembled the first time, by Alfonso I., in the year 1143, and that the fundamental laws of the Portuguese kingdom. [CORTES.]

Alfonso is said to have claimed a divine right to the throne, asserting that, the night before the battle of Ourique. (1139), he had seen the Virgin of the Saviour, encouraging him to the fight, and promising the kings of the country "to help his descendants after him." (Duarte Galvão, Chronica do Re Dom Alfonso.) A document to this effect, signed by the king, two bishops, and eight of the nobility and deputies of the towns, was said to have been discovered in the monas-tery of Alcobaca in 1596 by Brito, who transcribed it in his "Chronicles of the Cistercian Order." Brendão, in his "Monarquia Lusitana," Lisbon, 1638, published the acts of the cortes of Lamego, the genuineness of which has been doubted by Mr. Hume. (History of the Revolutions of Portugal, with Sir Robert Southwell's Letters concerning the Revolu- tion of 1657, London, 1740.) By these acts a formal regulation is made as to the transmission of the crown to the lineal descendants of Alfonso I. It is said that the first princess of the male line that the eldest daughter of a king should marry a prince, but a Portuguese, lest the kingdom should fall into the hands of a foreigner. It was also decreed by the Cortes, and assented to by Alfonso for himself and his successors, that the Portuguese was a free and independent people, that no king or prince of Portugal should ever acknowledge himself as tributary to a foreign power, for if he did he should lose all right to the throne. (Lemos, Historia Gene- ral do Reino de Portugal.)

Lamego is 70 miles north-east of Coimbra, 25 north of Viseu, and 45 east of Oporto. A good road has been made.
between lime and Oporto at the expense of the Oporto Wine Company. (Miniano, Dicionario Geográfico; Flores, Esporã Sagraida; Kinsay, Portugal Illustrated.)

LAMELLA’RIA. [Pleuragonchus.]

LAMELLIBRANCHIATA. M. De Blainville’s third order of Decapodacea of Cuvier.

M. De Blainville makes this order consist of the following families:—1st. Ostracacea (Oysters, &c.); 2nd. Sub-ostracacea (Spondylus, &c.); 3rd. Margaritaceae (Vesuvius, Molluske, &c.); 4th. Mysitaca (Muscle and Pinnas); 5th. Polyodontae, or Arcacea; 6th. Submusselites (Anodon, Unio, Cardita); 7th. Chamaeacea; 8th. Pteroides; 9th. Aedemaeaceae (Pholus, Teredo, Fistolans, &c.).

M. Blainville separates the order into two divisions.

LAMNIA. [Dolichias.

LAMMELLICORNES (Lateirre), one of the sections of the order Coleoptera. The insects of this section have five points to all the tarsi. The antennae are inserted in a small hollow in front of the eyes, short, usually composed of nine or ten joints, the last of which are long and flat, and open like a fan. [Coleoptera, vol. vii., p. 341. fig. 9.] The number of these lamellae and joints varies; there are generally three. The elytrae are usually very large, and the labrum is small and hidden beneath the elytra. The anterior tibiae are dentated externally, and the posterior tibiae are more or less denticulated. The mandibles of some of the species are membranous.

The larva (Coleoptera, vol. vii., p. 340. fig. 1) is soft, of a cylindrical form, or nearly so, and has a large vertical head. There are six small legs attached to the thoracic segments. The body is always bent. When about to assume the pupa state, the larva enclose themselves in an oval case formed of particles of earth, rotten wood, or other surrounding substances, which are cemented by a glutinous matter. Some of them live in the ground and feed upon the roots of plants; and others live in decayed animal and vegetable substances, upon which they feed. The perfect insects also feed upon these substances (many of them are found in dung); others feed upon the leaves of plants, or on the flowers.

Lateirre divides the Lamellicones into two great tribes. [Scarabaeides and Lucanides.]

LAMELLIROSTRES, Cicué’s name for the great family of the Anatoide (Ducks, Geese, Swans).

LAMENTATIONS of JEREMIAH. [Jeremiah.] LAMIA/CE, or LAMIACE, a very extensive and important natural order of Exogenous plants, with irregular unsymmetrical monopetalous flowers, and a four-lobed ovary, changing to four-seed-like monospermous fruits. It is techantly allied to the Loganiace as to differ only slightly in little except having regular flowers; but in nature it belongs to a different series of vegetation. The leaves of Lamiaceae are uniformly opposite, and their stems square or nearly so, and in the greater part of the order the flowers are disposed on the leafy branches of the stems in clusters axillary to leaves, and appearing in consequence as if in whorls.

The species are generally aromatic and tonic, a property that is in most cases owing to the secretion of a volatile oil in little cysts or glands occupying the leafy organs. The aromatic qualities are familiar to us in the Sage, Marjoram, Thyme, Basil, and similar plants, commonly cultivated for the service of the kitchen, as condiments; of Lavender, so much valued for its peculiar fragrance; of Mint and Pepper for their well known stimulating qualities; and of many others. Betony, Ground Ivy, Hoarhound, and others are examples of the bitter tonic qualities of such plants; Rosemary appears to have the specific property of stiffening the hair and encouraging its growth; its oil is that which gives the green colour to bear’s grease and such pomatum and Cat-thyme (Teucrium maron) and Cat-mint (Nepeta Catarrh) seem to be genuine feline aphrodisiacs.

Plants of this order are distributed over all the warmer and temperate parts of the world, generally being herbaceous, and never exceeding the size of a common herb, but Mr. Bentham has given an elaborate view of their geographical distribution, from which it appears that out of 1714 species 1630 belong to the Eastern hemisphere, and 849 to the Western; 80 are arctic; 60 inhabit the temperate parts of Europe, 190 Spain, 149 the Himalayan Mountains, and only 157 the equinoctial regions of both the old and new world, and these are chiefly mountain plants.

Laminus distributed the genera of Lamiaceae through his Deynamian Gymnospermia and Dandria Monogyna. Writers on the natural system have devised much better modes of arrangement; the most perfect and recent is that of Mr. Bentham, (Labiatarum Genera et Species, London, 1832-36, 8vo. 785 pp.)

LAMMIAS DAY, the name for the first of August, from

Leaf and flowers of Salvia pratensis. 1. the ovary, upon the four lobes of which is a part of the character of this order depending.

LAMIAN WAR. Those cities of Greece which were impatient under the supremacy of the Macedonians regarded Alexander’s death as a favourable opportunity to regain independence. In this struggle the Athenians took the lead. They were cordially supported by the Boeotians, both having a private reason for their acrimony in Alexander’s avowed design to restore all Greek exiles to their countries. By such a measure the Athenians would have been obliged to cede Samos, part of which they had lately seized upon the expulsion of the former possessors, while the Boeotians had a similar motive in their treatment of Gela. The richer part of the Athenians were very averse to contend again with the power of Macedon; but the poor, who looked to war for pay and plunder, of whom Philip had that war was their peace, and peace their war, carried the point and ambassadors were dispatched through Greece to organize a confederacy, in which the Argians, Messenians, and other states of Peloponnesus, with many of the minor nations of northern Greece, joined. The events of this, which is called the Lamian War, have already been related at sufficient length. [Antipater; Athens: Erothynes.]

LAMINARITES. Brogniart, classing fossil fuci according to the analogy they offer to recent tribes, uses this term for one species found in the secondary strata of Aix, near La Rochelle.
the Anglo-Saxon *Hlastr-masse*, coal-frost or frost, when the Saxons offered an obligation of loves made from new corn. 

Brand in his 'Popular Antiquities' speaks of it as still a usage in some places for tenants to be bound to bring in wheat of the year to their lord on or before this day. In the *Sakabokk manuals* of the fifteenth century it is called *Be
nedictio novorum Fructuum.* This day had also the name of the Gule of August, as Pettingal (*Archaeologia*, vol. ii., p. 67) says from the Celtic Wyl, or Gyl, a festival. (*Bosworth's Anglo-Saxon Dict.* v. *Hlastr-masse*; Brand, *Popular Antiquities*, p. 273.)

LAMOROUX, J. V. F., professor of natural history at Caen, was born at Agen in Guienne, in 1779. He particularly applied himself to the study of marine productions, both vegetable and animal, and published at Agen some observations on many new and rare species of Fuc. In 1809 he was appointed professor at Caen, where he wrote his 'Histoire des Polypiers Corallignes flexibles,' which appeared in 1816 embellished with 15 plates, containing 150 figures drawn by the author. Before being printed, this work was presented to the Institute, of which Lamouroux was a correspondent. At first he only described those species of Polypl which were contained in his own collection, but afterwards he included all the species which had been described by other authors. Lamouroux, in his arrangement of these productions, divides them into 56 genera, only 14 of which were known before his time, and 560 species, 140 of which were new: thus, both as to genera and species, the new is the complete that has been written on this family of animals. Lamouroux wrote several other works; he published, in 1817, a description of a new species or variety of wheat, which has been successfully cultivated in some of the northern provinces of France, where it is called *bki lamma.* He also wrote a 'Dictionary of Zoophytes,' which forms part of the 'Encyclopédie Méthodique;' it came out at Paris in 1824, in 4to.

This promising naturalist died at Caen, 16th March, 1825, at the early age of 46.

**LAMP-BLACK.** A kind of fine charcoal prepared from the imperfect combination of certain kinds of *fi*, containing much resin, and the refuse and residuary coal left by the distillation. The furnace chimney is long, and the greater part of it nearly horizontal, and its exit is covered with old sacking; or the smoke containing the charcoal is carried into chambers, where it is also deposited on coarse cloths. The purest lamp-black is procured by the combustion of oils, but that is much too expensive for common use.

Lamp-black is extensively employed as a black colour, and mixed with other pigments. According to the analysis of Bracconot, lamp-black consists of:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charcoal</td>
<td>79.1</td>
</tr>
<tr>
<td>Pyretin soluble in alcohol</td>
<td>5.3</td>
</tr>
<tr>
<td>Pyretin (black) insoluble in alcohol</td>
<td>1.7</td>
</tr>
<tr>
<td>Sulphate of aluminia</td>
<td>1.0</td>
</tr>
<tr>
<td>Lime</td>
<td>0.8</td>
</tr>
<tr>
<td>Potash</td>
<td>0.4</td>
</tr>
<tr>
<td>Phosphate of lime (ferruginous)</td>
<td>0.3</td>
</tr>
<tr>
<td>Glauber salt</td>
<td>0.5</td>
</tr>
<tr>
<td>Sand (accidental)</td>
<td>0.6</td>
</tr>
<tr>
<td>Water</td>
<td>8.0</td>
</tr>
<tr>
<td>Chloride of potassium (trace)</td>
<td>100.0</td>
</tr>
</tbody>
</table>

According to Reichenbach, lamp-black contains naphtha-

Also, Pyretin is a peculiar resin, of which there are two kinds. It is owing to the presence of these substances that lamp-black burns with a flame when it is heated, and that it yields empyrean oil when subjected to dry distillation. **LAMPS, SAFETY.** It has been long known that coal-

munes, and especially such as are deep, are occasionally infested with a gaseous product, which, on account of its combustible properties, is called *fire-damp,* the word *dampy* meaning a damp or wet place. The chemical name for this gas is carburetted hydrogen [*H2CO*]; and its properties were first ascertained and its analysis correctly stated by the late Dr. Henry Davy.

Lamp-black has been proposed for safely lighting coal-mines subject to the visitations of this gas, which it will not be necessary to notice: the safety-lamp of Sir H. Davy being the only one which has ever been judged safe, and been extensively employed. In his work on the 'Safety-lamp,' the author states that he first turned his attention particularly to this subject in 1814, when, as he observes, there appeared very little hope of finding an efficacious remedy. The resources of modern mechanical science had been fully applied in ventilation; the measures adopted had failed of their object, and the public understood; every precaution was taken to preserve the communications open; and the currents of air were promoted or occasioned, not only by furnaces, but likewise by air-pumps and other apparatus.

After some allusions to what had been done by those who preceded him in the inquiry, Davy proceeds to describe the origin and progress of the investigations that led him to the discovery of the principles by which he conceived that flame would be extinguished.

With these views he began a minute chemical examination of various specimens of fire-damp, by which he confirmed the previous statement of Dr. Henry, that the pure inflammable part of it is carburetted hydrogen gas. He found that it required an admixture of a large quantity of atmospheric air to render it explosive: when mixed with nearly four times its bulk of air it burnt quietly in the atmosphere; with between five and six times it exploded feebly; with seven or eight times the explosion was strong, and when mixed with even fourteen times its bulk of atmospheric air the compound was still explosive. Proceeding with his experiments Davy ascertained that explosions of inflammable gases were incapable of being passed through a course of sphericity without some diminution of sphericity was still obtained by diminishing their length and diameter at the same time, and likewise diminishing their length and increasing their number, so that a great number of small explosions might be produced. If the sphericity of a cylinder of very fine wire gas did not explode even a mixture of oxygen and hydrogen, that the gases burnt in it with great vivacity.

The experiments to which we have alluded, served as the basis of the safety-lamp, which we shall now describe, and add some of the investigator's observations respecting it.

The aperture in the gauge should not be more than 1/4 of an inch square. As the fire-damp is not inflamed by ignited wire, the thickness of the wire is not of importance; but wire from 1/4 to 1/8 of an inch in diameter is the most convenient.

Iron and brass wire-gauze of the required degree of fineness are made for sieves by all wire-workers; and except when a lamp is to be used by a viewer for dialing, iron wire-gauze is to be preferred: when the degree of thickness it can neither melt nor burn; and the coat of black rust which soon forms upon it superficially, défends the interior from the action of the air.

The gauge should be made of iron double joinings, the gauge being folded over so as to leave no apertures. When it is cylindrical it should not be more than two inches in diameter; for in larger cylinders the combustion of the fire-damp renders the top inconveniently hot; and a double top is always a proper precaution, fixed at the distance of half or three-quarters of an inch above the first top.

The gauge cylinder should be fastened to the lamp by a screw of four or five turns, and fitted to the screw by a tight ring; the rings in the lamp should be made with hard solder; and the security depends on the certainty that no aperture exists in the apparatus larger than the wire-gauze.

The annexed figure of the safety-lamp requires but little explanation; the cylinder of wire-gauze is defended by three upright strong wires, which meet at the top, and to them a ring is fixed, from which the instrument is suspended. The lamp is screwed on to the bottom of the wire-gauze, and is supplied with oil by the pipe projecting from the top. When the top is ascended, the middle bent at the upper end, is passed through the bottom of the lamp for raising, lowering, or trimming the wick.

When the lamp is lighted and introduced into an atmospheric district, the cylinder of wire-gauze is the first effect of the fire-damp to increase the size and length of the air.

When the inflammable gas forms as much as 1/3 of the volume of the air, the cylinder becomes filled with a feeble blue flame, but the flame of the wick appears burning;
Although the inventor of this lamp has expressed himself fully on the subject, and others have entertained strong doubts on the subject, which have latterly been much strengthened. During the session of parliament for 1835 a committee was appointed to inquire into the "Accidents in Mines." The evidence of Mr. Buddle was however unsatisfactory in favor of the safety of the lamp; he stated, that for many years he had not less than 1000, and sometimes 1500 lamps in daily use, and that he never knew in one solitary accident an explosion to happen from them; and he mentioned the way in which he had, with them in all possible varieties of explosive mixtures.

On the other hand abundant evidence, and especially that of Mr. Pereira, was adduced before the committee to show, that in strong currents of explosive mixtures the lamps could not be trusted, as the flame passed through them; indeed Sir H. Davy seems himself to have been aware that an objection might possibly be urged against them on this head, and he proposed the use of a tin shield where such currents occur. It is however probable that some may be of the opinion that the use of a safeguard, which at least must be considered as imperfect and precarious.

While these lamps may be considered as safe in strong currents of explosive mixtures, and the experiments which have been made by the writer of this article have witnessed have convinced him that in strong currents they are insecure, even though the flame be not very hot. On this subject we cannot do better than adduce the opinion expressed by the late Mr. Turner, in the last edition of his "Elements of Chemistry," which coincides with that of the parliamentary committee:—"If a lamp with its gas red-hot be exposed to a current of explosive mixture, the flame may pass through it for a time, but all below the point of ignition, and in that case an accident might occur with a lamp which would be quite safe in a calm atmosphere. It has been lately shown by Messrs. Upton and Roberts, lamp manufacturers in this city, that flame may in this case be made to pass through the safety-lamp, as commonly constructed; and I am satisfied, from having witnessed some of their experiments, that the observation is correct. Thus they may account for accidents in coal-mines where the lamp is immersed in water, but it is not an obvious mode of avoiding such an evil as to diminish the apertures of the lamp; but this remedy is nearly impracticable from the obstacles which very fine wire gauze causes to the diffusion of light. A better method is to surround the common lamp with a loose gauze of air to enter only at the bottom of the lamp through wire gauze of extreme fineness, placed horizontally, and to escape at top by a similar contrivance. Upton and Roberts have constructed a lamp of this kind, through which I have in vain tried to cause the communication of flame, and which appears to me perfectly secure; in case an accident should break the glass their lamp would be reduced to a safety-lamp of the common construction. Davy's lamp thus modified gives a much better light than without the glass. Just as all lamps burn better with the ends of the oil burnt away, until finally the lamp has lost its power of communication with its socket. In concluding we heartily adopt the language of the Report by the Parliamentary Committee, that we cannot admit that these experiments have any tendency to detract from the character of Sir H. Davy, or to derogate the fair view placed by Messrs. Ayrton upon his invention. These improvements are probably those which longer life and additional facts would have induced him to contemplate as desirable, and of which, had he not been the inventor, he might have become the patron."
mal retired within its shell, they would still keep their hold, and allow themselves to be carried into the shell with the snail, and although they became enveloped in the mucous secretion, it very seldom appeared to adhere to their bodies. Upon being touched or disturbed in any way they emitted the phosphoric light, but not to so great degree as the perfect insects.

LANARKSHIRE, or CLYDESDALE, is an inland county of Scotland, bounded on the north and north-west by the shires of Stirling and Dumfarton, on the west and south-west by Renfrew and Ayr, on the east and south-east by Linlithgow, Edinburgh, and Peebles shires, and on the south by the county of Dumfries; being comprised between 55° 15’ and 55° 39’ N. lat., and between 3° 14’ and 4° 41’ W. long. The greatest length from Queensbury Hill, its southern extremity, to the borders of Dumfartonshire, is 54 miles; its greatest width, from Middlefield in the west to the Penthland Hills, is about 36 miles, and its superficial extent, according to Mr. MacCulloch, is 604,800 imperial acres, or 945 square miles, which nearly corresponds to 475,938 Scotch acres.

It is divided into three principal districts or wards, to each of which is appointed a sheriff-substitute for the superintendence of its judicial concerns. The surface of this county is so various, being in some places mountainous, in others hilly, and in others comparatively flat, that it will be most convenient to notice the local peculiarities of each ward under separate heads.

The parish of Lanark, of which the ancientburgh of Lanark is the chief town, comprises the parishes of Carlue, Lanark, Carstairs, Carnwath, Dunysre, Dolphinton, Walston, Biggar, Liberton, Lamington, Culter, Crawford, Crawfordjohn, Douglas, Wiston and Robertson, Symington, Caprington, Carmichael, and Lommelaw, and includes that extensive portion of the county which lies between the shires of Peebles, Dumfries, and Ayrl.

It constitutes more than one-half of the county, and consists principally of mountains, hills, and moorish lands, which do not appear susceptible of much improvement.

Mr. Naismith, in 1794, estimated the surface as follows:—

<table>
<thead>
<tr>
<th>Description</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moor pasture</td>
<td>165,000</td>
</tr>
<tr>
<td>Woods</td>
<td>3,140</td>
</tr>
<tr>
<td>Chalets of rivers, brooks, roads, &amp;c.</td>
<td>2,600</td>
</tr>
<tr>
<td>Orchards</td>
<td>70</td>
</tr>
<tr>
<td>Arable and meadow</td>
<td>76,490</td>
</tr>
</tbody>
</table>

The geology and mineralogy of this part of the county are important. Rich seams of excellent coal, from two to seven feet in thickness, are advantageously wrought at Wilsontown (parish of Carnwath), and in other parishes of the ward. The Wilsontown coal-field lies in an oval basin bearing north-east and south-west; the dip, about one in seventy, is at right angles to the bearing; the seams are intersected by numerous slips or hitches, which throw the coal down from 30 to sometimes 50 feet perpendicular. In the immediate vicinity of this coal-field are the Wilsontown iron-works, which were conducted with apparent prosperity until the year 1806, when the company by whom they were carried on became embarrassed, and the machinery was permitted to remain idle for many years. This circumstance, which was the source of much distress to the resident population, does not appear attributable to any cause, either in the quantity or quality of the mineral, as it was reported in 1797, by persons employed for that purpose, that 40,000 tons of iron might be made annually for the space of 19 years, and that the supply of ore was inexhaustible. Operations have since been renewed under different proprietors, but we are not aware with what success. Freestone (of a beautiful white colour, well adapted for building), whinstone, and limestone, are all abundant and lapping at an equal advantage. The lead-mines of this parish of Carnwath are the most productive in Scotland, and have been continuously worked from a remote period. Gold and silver are disseminated in minute particles through the supercrustal beds, but the quantity is at present too small to repay the expense of its extraction, though formerly it appears to have been otherwise, as there are extant, in the Advocate’s Library of Edinburgh, manuscript records, dated in the reign of Elizabeth, which state that specimens of native gold were here sometimes met with weighing from one to several ounces. The present annual produce of these mines is estimated at 700 tons of lead. In the vicinity of the lead-mines a vein of copper was found, and another of antimony, and some attempts made to work them, but we believe, without success. Among the more elevated mountains of this part of the parish is a strip of slate, but their distance from the populous parts of the county precludes them from being extensively worked.

The arable portion of this ward is inconsiderable, and confined to the banks of the Clyde and those of the streams which are tributary to it. The quality is so various, that it is difficult to assign its average rent; where most productive, it lets for 5l. the imperial acre, at other parts it will scarcely fetch as much per acre. The highest ground is in the parishes of Carnwath, Lesmahagow, and Annick, the mountains are so huddled together, says Mr. Naismith, 'that their grandeur is lost to the eye of a beholder. When he traverses a hollow, only the sides of the nearest mountains are presented to his view, and when he climbs an eminence he sees nothing but a confused group of rugged tops, with the naked rock frequently appearing among the herbage.' The principal elevations are:—Tinto in the united parishes of Wiston and Robertson (2310 feet); the range of the Lathers in the parish of Crawford and near the borders of Dumfriesshire (greatest height 2396 feet).

The middle ward, of which Hamilton is the chief town, comprises the parishes of Hamilton, Blantyre, Kilbride, Strathaven, or Airdrie, Glassford, Stonehouse, Cambusnethan, or Camnethan, Shotts, and Old and New Monkland; and is about half the extent of the upper ward. In this ward the elevation of the land is considerably diminished, and it continues to decline towards the north-west, and in 1794, according to Mr. Naismith, the surface consisted of

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</tr>
</thead>
<tbody>
<tr>
<td>Moor pasture</td>
<td>66,000</td>
</tr>
<tr>
<td>Woods</td>
<td>4,150</td>
</tr>
<tr>
<td>Towns, rivers, and roads</td>
<td>1,300</td>
</tr>
<tr>
<td>Orchards</td>
<td>130</td>
</tr>
<tr>
<td>Arable</td>
<td>70,750</td>
</tr>
<tr>
<td></td>
<td>142,330</td>
</tr>
</tbody>
</table>

It is much diversified by gently undulating grounds, there being no plains of any extent except in the valley along the banks of the Clyde. The prevailing soil is of a clayey nature mixed with sand, and varies considerably in colour, composition, and degree of fertility. In some parts, as in the parish of Hamilton, it consists of a deep fertile loam, sometimes with a subsoil of loose gravel; in others, as in the parish of New Monkland, it is generally more of a moorish character, and yields, in early seasons, good crops of oats, flax, and rye-grass-hay, but in cold or late seasons the oats do not ripen well. The usual term of leases is nineteen years. Some old horse-lands are still let for twenty-one years and are let to the tenant to give up the lease in the event of his not being satisfied at the end of a specified time. Oats and barley form the principal crops, but there is also much wheat raised both in this and the adjoining ward to the north. The farm buildings are greatly improved, but the farms are for the most part small.

Farming operations are much better understood than formerly, and draining, the long neglect of which had proved highly detrimental to the soil, is now more generally attended to the advantage of the tenant, and in great request for the cultivation of turnips. The rent of the arable land varies from 1l. 10s. to 7l. an acre.

This ward is also rich in a mineralogical point of view, containing an abundance of whinstone, sandstone, ironstone, and coal. The coal-seams vary from two to nine feet in thickness. The ironstone occurs both in masses and in seams. In the parish of Old Monkland are situated the Clyde iron-works, which are conducted upon a very extensive scale.
The commerce of the Clyde is little below Greenock. The entire length of the river, from its source to the city of Glasgow, is about 58 miles. The tide is clear, and the current, when it does flow, is in a southerly direction. This river is agriculturally well watered, and the soil along its banks is fertile. The climate is temperate, with mild winters and warm summers. The river is navigable for about 40 miles from Glasgow, and is lined with picturesque scenery.

The town of Glasgow, which stands on the western bank of the river, is the largest and most important city in Scotland. It is a commercial and manufacturing centre, and is noted for its exports of wool, hemp, and other products. The city is also a centre of education, with several universities and colleges.

The river Clyde is an important waterway, with several canals and railways along its course. The Monkland Canal, which connects the Clyde with the Forth, is a notable example of this. The town of Airdrie, which stands on the banks of the river, is a centre for coal mining and manufacturing.

The River Clyde is also a popular tourist destination, with many scenic locations to visit, such as the Falls of Lora and the Clyde National Park. The river is also an important habitat for many species of wildlife, including birds, fish, and mammals.
hills. It contains a thriving cotton manufactory, originally established by Mr. Dale in 1734, who retired from the concerns of trade and now carries on the business; and the ordinary number of persons employed is 1110, of whom about 60 are mechanics and labourers. The population in 1831 was 1901.

Airdrie is a well-built town in the parish of New Monkland, distant 32 miles west by south from Edinburgh. It possesses the privileges of a royal burgh, and was constituted by the Reform Act a contributory parliamentary borough. The fairs for the sale of cattle are held every month. The foundry of a large cotton mill has recently been laid, which is expected to employ a considerable number of the inhabitants in carding, spinning, &c. In 1831 the population of the town was 6594. Besides the parochial school, there are four others in the parish, which are supported by subscription. The master has a dwelling-house and a garden, and a salary of 30l. in addition to his other emoluments, consisting of school fees, &c., which amount to about 40l. per annum. Besides a circulating library and reading-room, there is a benevolent institution for the maintenance and education of poor orphans and other destitute children.

Hamilton (antiently Cadzow), a handsome though irregularly built town, is pleasantly situated near the confluence of the Clyde and the Leven, at the distance of 7 miles west from Edinburgh. In 1548 Queen Mary erected it into a free royal burgh, but the rights and privileges thus acquired from the crown were subsequently resigned into the hands of the lords of the manor of Hamilton, who were distinguished in 1670, made it a burgh of regality, dependent upon them and their successors, in which state it still remains. Hamilton Palace is a very superb building, and contains many valuable paintings; but for an account of these and the other antiquities of the place, which are numerous and interesting, the reader is referred to the 'New Statistical Account of Scotland.' The revenues of the town are considerable, and are derived chiefly from lands and other property within the burgh. Gas-works for the supply of the town were erected in 1831, at an expense of 2400l., and subsequently attempts have been made to establish a company for supplying the town with water, as also to bring the Police Act into operation, which latter measure was however outvoted by the majority of the inhabitants.

The antient grammar-school of Hamilton is in great repute, and to its influence may be attributed the superior civilization and love of literary pursuits which are said to distinguish the inhabitants of this place. The schoolmaster receives a salary of 34l. 4s. in addition to his fees, which, on an average, amount to 50l. The fees for Latin are 7l. 6d. per quarter, and an additional 3s. for Greek. The number of pupils in 1834 was 1000, and the schools in this parish are numerous, and afford education to more than 1000 children. Besides a public library, consisting of upwards of 3000 volumes, there is a Mechanics' Institution, established in 1825. The population of the parish in 1831 was 2913.

(New Statistical Account of Scotland; Naismith's View of the Agriculture of Clydesdale, 4to. 1794; M'Culloch's British Empire; Beautes of Scotland; Carlisle's Dictionary; Parliamentary Papers, &c.)

LANCASHIRE, a northern county of England, is bounded on the north by Cumberland and Westmoreland, on the north-east and east by Yorkshire, on the south by Cheshire, and on the west by the Irish Sea. Its form is irregular, being composed of several detached portions. The area of Furness, a portion of the county on the north-western side, is separated from the rest of the bay by Morecambe, and by a narrow strip of the county of Westmoreland. Its greatest length, not including Furness, is from 'the Counties Stone,' at the junction of the three counties of York, Westmoreland, and Lancaster, to the bank of the Mersey, south of Prescot, about 64 miles; the greatest breadth is from Redmer's Head, east of Rochdale, to Formby Point on the Irish Channel, nearly 45 miles. The western extremity of Furness is the head of Ambleside at the head of Winandermere to Rampsde, at the western extremity of Morecambe Bay, 23 or 24 miles; the greatest breadth from the Duddon to the Winster about 13 miles. The narrow island of Walney and sandstone bar at the southern extremity of this detached portion. The whole county is comprehended between 53° 20' and 54° 25' N. lat., and between 2° 0' and 3° 15' W. long. The area is estimated at 1756 square miles; the population about 120,000. The population of South Lancashire, as the county is termed, is about 300,000. In size it is the sixth county in England, being somewhat smaller than Northumberland, and rather larger than Somersetshire; in population it is exceeded only by Yorkshire, Lancashire, Middlesex, and the Metropolis. With the exception of the metropolitan county alone, Lancaster, the county town, is about 213 miles in a straight line north-west of London, or 236 miles by the road through Northampton, Leicester, Derby, Macclesfield, Manchester, and Liverpool.

Surface and Coast-line.—The inland part of Furness is an integral part of the Cumbrian mountains, and is marked by the features common to that county. Mountains range with undulations in elevation of 2000 and 3000 feet; lakes and mountain streams are separated by narrow plains watered by mountain streams, and intersected by lakes. Towards the coast the mountains and hills subside; there are no cliffs, and in some parts the coast is occupied by bogs, or, if they are provincially termed, moors. Furness is distinguished into two parts, according to the character of the surface; the mountainous part is Upper Furness; the low flat towards the shore is Lower Furness. In the main portion of the county the northern and eastern parts are occupied by branches from the central high lands which run southward to the Humber, or the Derbsihire. These elevations are not equal to those of the Cumbrian group; but they expand into greater breadth, forming high waste moorlands. In the southern and western portions are the broader moorlands, which run from the base and the sea a broad flat belt of land, and on the south sinking into the valley of the Mersey and the wide expanse of the plain of Cheshire. These high lands reach the margin of the sea at Liverpool; but from the mouth of the Mersey northward to that of the Humber, the uniform level, containing extensive peat moors, stretches inland from the flat and sandy coast for several miles. Between the mouth of the Ribble and the Wyre, the Fylde country, as it is termed, forms an extensive tract between the road from Preston to Lancaster and the sea, which is generally level, or has in parts a slightly undulating surface; this district also contains extensive peat moors. The level country still borders the sea from the mouth of the Wyre to that of the Lune, and continues along the coast of Morecambe Bay. With the exception of these low lands, and the tract of Lower Furness, Lancashire has a hilly and in some parts a mountainous character. The principal elevations are as follows:—Old Man in Cumbria, 2577 feet; another peak, near Old Man, 2577 feet; Pendle Hill, near Clitheroe, 1803; Bleasdale Forest, on the east border near Garstang, 1709; Boulsworth Hill on the east border, near Burnley, 1659; Rivington Moor, near Bolton, 1545.

Along this part of the coast partake of the flatness which marks that side of the county. Except near Blackpool, where there are clay cliffs extending for about three miles, and in some places more than one hundred feet high, the coast is low throughout, with a sweeping level tract, skirted by broken moorland. The roundness of its outline is particularly observable in the southwestern part, where the estuaries of the Ribble and the Mersey, with the intervening coast, form almost the segment of a circle.

Towards the north, where the high land approaches nearer to the sea, the coast loses its convexity of outline and forms a deep bay, of which Rossall Point and the southern point of Furness form the extremities. A tongue of low lying ground extends from the point of the coves, giving the bay a long and deep form; it divides the large bay into the two smaller ones of Lancaster and Morecambe, the Morichambe of the antients. Lancaster Bay receives the Lune and the Wyre: the estuaries of the Leven and the Ken, or Kent, open into Morichambe Bay. The depth of water in both bays is less, except in the channels formed by the rivers; and a considerable part becomes at low water an expanse of sand, across which there is a road, passable, though not without danger, when the tide is out, from the neighbourhood of Lancaster into Furness.

The only islands along the coast are off the southern extreme of Furness. Walney Island, the largest, extends from the north-west to the south-east, about eight miles, in width nowhere more than one mile. It belongs to the mainland, from which it is separated by a narrow channel.
lies upon a belt of moss or peat, in which large trees have
in as a trunk, and so as to have at times nearly
bated by the tide. It contains two hamlets, and has a
meander of bays. Some distance from this coast, and on
the southern extremity of the island is a lighthouse.
The stony side of the county, as far north as
the great deposit of rock salt. This formation
upland the valley of the Mersey, from the bank of which
it spreads inland several miles, especially in the neigh-
bourhood of Manchester. It occupies also a considera-
able range of the western side of the county, and forms
a valley of the Lune at Lancaster. It is covered near
the coast by the moss or peat which extends to the west-
end of a line drawn from Liverpool by Ormskirk to
Preston, and from Preston by Garstang to Lancaster it is
vexed by the clays, marls, and peat-mosses of the Fylde
street. The peat-mosses contain great quantities of large
other-trees, the remains of ancient forests. Some patches
of moss remain in a state of nature, and are unproduc-
tive of coal. The coal which is in a state of cultivation, and
in reclaiming those parts which yet remain in a
state of nature. The portion of the county occupied by
the red sandstone parishes of the flatness or the
clayey part of the county is a mining and industrial
area, with the millstone-grit on the further side, and
the coal-measures crop out from under the red
sandstone. The coal-field of South Lancashire the county owes
its manufacturing pre-eminence. This field occupies
a large area between the Ribble and the Mersey,
from which bounds it extends from Colne south-west to
Burnley, Blackburn, and Chorley, to Upper Holland, near
Lancaster; from thence north-west to near Ormskirk; and from
that point the boundary runs in an
regular line by Newton and Leigh to Worsley; and from
there makes a sweep round Manchester at an average
distance of five miles from that town till it reaches the river
Mersey on the border of the county. The eastern limit of
the coalfield is generally speaking, just within that of
the county; the high land which divides Lancashire from
Cheshire is formed of the millstone-grit, which here crops
up beneath the coal-measures. There is very
little in the Cheshire coal-measures extending west of
the River Mersey. One ridge appears in the peninsula of the Wirral in Cheshire,
but it is not much extended south of the
river. The coalfield extends westwards to near
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Widnes, and is broken across by a narrow
valley near the Wirral. The coal appears in the
peninsula of the Wirral in Cheshire,
at Stockport. Its principal Lancashire tributary is the Irwell, which has its source in Dunolly Hill, in the moors between Rochdale and Burnley, and flows in a windy

The tolerably navigable Stockport. The whole length of the Irwell may be estimated at 40 miles: that of the Tame or Mersey, including its estuary, at nearly 70 miles.

The Sankey Water, which flows south-west into the county, the Whinester and the Duddon form respectively the eastern and western boundaries of Furness: and the Leven from the lake of Winandermere, and a canal from Coniston Water, flow through the middle of Furness and unite their waters in the sea. The lake of the Leven is a beautifull stream; its valley is called Dounsdale. It rises north of Coniston Fells, and sweeps round and under them.

The Douglas rises near Wigan, and flows north-west into the estuary of the Ribble. The Alt, or All, rises near Prescot and flows north-west into the Irish Sea near Formby Point. The Douglas is 20 miles long; the Alt about 10 or 14: the former was made navigable nearly throughout as far back as the year 1757; but many years since, an artificial cut was made for the natural channel, except for a short distance near the mouth.

There are in Furness two considerable lakes, Winandermere or Windermere, and Coniston Water. Winandermere is on the border of Westmoreland and Lancashire, but by its northern side belongs to Lancashire, which consists of a southern part is included. It is about 16 miles long from north to south, and varies from half a mile to a mile in breadth; but in one part (where there is a ferry) it is not above five hundred feet broad. It is the largest lake in England, and it varies with the seasons of the year, from 9 feet to nearly 500 feet in depth.

A small lake, Esthwaite Water, in Lancashire, discharges its waters into Winandermere, to the west of which lies the lake. The waters of some of the smaller Westmoreland lakes also flow into this great receptacle. The waters of Winandermere are beautiful, and clearly, on which it is supposed that its name is derived from the Celtic Gwyen hên drw, 'the clear antient lake.' There are several small islands in it.

Coniston or Thurston Water is nearly six miles long from north to south, with a variable breadth, never perhaps exceeding three-quarters of a mile. Its greatest depth is about 240 feet. It is fed by a number of mountain streams, and discharges its waters into the estuary of the Leven.

There are some shallow lakes or morrasses along the western coast of Lancashire, as Marton Mere, between the Ribble and the Wyre, which is now considerably reduced by the channel called the Main Dyke; and White Otter, and Barton Mere, not far from Ormskirk. Martin Mere, near the mouth of the Douglas, has been drained, and brought, at least in a great degree, into cultivation.

Canals.—The Sankey Canal was the first executed in England. The act of parliament for which it was obtained in 1755. It extends from St. Helen's near Prescot along the valley of the Sankey brook into the Mersey at Fiddler's Ferry near Warrington. It has a very circuitous course of about twelve miles, with three branches.

James Brindley's Canal was commenced soon after the Sankey Canal. The act of parliament under which it was commenced was obtained in 1759. An act had been obtained several years before, but nothing had been done under it. The execution of this great work was effectuated by Francis, duke of Bridgewater, and Brindley the engineer. The original design was, by a canal from Worsley (between Leigh and Manchester), where the duke had some valuable collieries, to Manchester, to supply the town of Manchester at a cheaper rate than by the imperious navigation of the Mersey and the Irwell. The canal from Worsley (where there are extensive tunnels and underground works connected with the duke's collieries) to Manchester was completed by the year 1762. The duke now disposed his means, and by an act obtained power to make a canal from the neighbourhood of Manchester into the Mersey, which he effected; but this work chiefly belongs to Cheshire. [Bridgewater, Francis Egerton, Duke; Brindley, James; Cheshire.] The duke's canal was afterwards extended from the Worsley end of the original canal to the town of Leigh.

The Leeds and Liverpool Canal, the most extensive in the kingdom, was projected by Mr. Longstock, a native of Halton, near Oldham, and was carried into execution by Mr. Brindley, who was obtained in 1770. It enters this county from Yorkshire at Fourbridge near Colne, where it passes through a great tunnel nearly a mile in length. From this tunnel it proceeds to the town of Wigan, where it unites with the coast navigation, and proceeds by Barton Mere, to the Duke of Bridgewater's Canal at Leigh. The length of this canal, without reckoning the branches, is more than one hundred and twenty-seven miles, including the eleven miles of the Lancaster Canal incorporated with it. From a branch near the neighborhood of Manchester, of thirty miles, there is not a single lock on this canal, a fact which indicates the level character of the country which it traverses before it enters the hilly district.

The Lancaster Canal begins near Kendal in Westmoreland, and proceeds southwardly on a line to Lancaster, where it crosses the Lune by an aqueduct, the largest of the kind in England, of five arches, each of seventy feet span, and rising nearly forty above the water. It has a straightsided southward course, but on a less direct line, it passes near Garstang, at which place it crosses the Wyre by an aqueduct, to Preston. Here the canal is for a few miles replaced by a railroad which crosses the Ribble on a viaduct bridge. The canal recommences being the most striking example of the use of the Duke of Bridgewater's line. That portion of the canal which extends from Shaw Hall, a few miles from Preston, to Wigan, is incorporated in the line of the Leeds and Liverpool Canal; the junction of which renders unnecessary the farther extension of the Lancaster Canal to West Houghton, as at first designed. The whole length of this canal is about 70 miles.

The Ashton-under-Lyne Canal, or, as it is sometimes called, the Manchester, Ashton-under-Lyne, and Oldham Canal, commences on the eastern side of the town of Manchester, and runs in a tolerable straight line, about four miles from Manchester on the road to Ashton. It has branches to Stockport; to the Huddersfield Canal at Duckfield, near Ashton; and to the collieries at Hollinwood. Near Oldham, the canal branches, and is carried twice over the Medlock by aqueducts: near one of these, in the Hollinwood branch, there is a tunnel of considerable extent. Several cuts have been made in Manchester from this canal to several wharfs and quays in that town. It communicates with the Rochdale Canal by means of that with the Duke of Bridgewater's. The length of the canal and its branches (exclusive of the branch to Stockport) is between 11 and 12 miles. The acts of parliament under which it was formed were passed in or between the years 1794 and 1806.

Of the Huddersfield Canal and the Peak Forest Canal only a very small portion is in Lancashire. They both cross the Thame near Duckfield to unite with the Ashton-under-Lyne Canal. The Rochdale Canal commences in the Calder and Huddersfield Navigation in Yorkshire, and proceeds by Todmorden into Lancashire. It follows the valley of the Roch to Rochdale, in a straight course. It proceeds to Manchester, where it unites into the Duke of Bridgewater's Canal, receiving a branch from the Ashton-under-Lyne Canal by the way. It was executed under acts passed in or between the years 1794 and 1806.

The Manchester, Bolton, and Bury Canal commences in the Mersey and Irwell navigation at Manchester, and runs to Bolton, with a branch to Bury. The length of the canal and branch is about fifteen miles. The acts for it were passed in 1794 and 1806.

The canals of Lancashire form part of that immense system of inland navigation which connects the Irish Sea.
The first railway formed in Lancashire was probably that which is part of the line of the Lancaster Canal at Preston thirteen miles, and was opened for the accommodation of trade from the Manchester, Bolton, and Bury Canal at Ashton-under-Lyne, Huddersfield, and Sir John Ramsay, which may be substituted for the Rochdale Canal in the last line.

The very called Runcorn and Manchester Railway was commenced under acts obtained in 1826 and following years, and was finished in its whole length in 1836. Its length is above twenty-three miles, and has sixty-three bridges along the line, by which it passes over or under roads or over streams; the principal is that at the valley of the Sunney, which has nine miles, each of fifty feet span and sixty-five feet high. The longest extends a little beyond a mile and a half, and the shorter about three hundred and sixty, under the part of the town of Bolton.

Near Liverpool, at Olive Mount, it is cut through the sandstone-rock to the depth of about 70 feet. While the new line was being made, the old line was used to carry goods and passengers by day, while the new line was used to carry goods and passengers by night, thus shortening the journey. The new line is about 12 miles long; and from Manchester to Ashton-under-Lyne, twenty miles long; Preston to Lancaster, twenty miles and a quarter. Preston, by Kirkham and Bolton to the new harbour forming at the mouth of the River, nineteen miles and a half long; Manchester to Leeds via Rochdale and Todmorden twenty-four miles; Manchester to Runnymoore, twelve miles long; and from Manchester to Bolton, ten miles long.

An act was passed in 1826 for a railway from Manchester to Oldham, but we believe the undertaking failed. The following roads were in course of construction:—Bolton Preston, twenty miles long; Preston to Lancaster, twenty miles and a quarter. Preston, by Kirkham and Bolton to the new harbour forming at the mouth of the River, nineteen miles and a half long; Manchester to Leeds via Rochdale and Todmorden twenty-four miles; Manchester to Runnymoore, twelve miles long; and from Manchester to Bolton, ten miles long.

The railway from Manchester to Runcorn, as well as other railways from St. Helens to Wirral, and from St. Helens to Liverpool, enter the county at Wirral, and runs from Wirral to Liverpool, from where a place a road runs to Preston, where it joins the high-road to Carlisle. The railway from Manchester to Liverpool joins the London and South Western Railway at Warrington, a road from Manchester to Warrington passes by Middleby and Rochdale to Halifax and Leeds in Yorkshire, another by Oldham to Huddersfield, and so to Godley, and another northward by Bury, Haslingden, and others, to the Manchester and South Western Railway. These roads are too numerous to be detailed. The connection by the railway from Manchester to Liverpool and the railway along this line.

The soil of Lancashire is mild and moist. The high hills which run along its eastern boundary shelter it from the cold easterly winds, but at the same time arrest the clouds which come from the Atlantic, and produce more abundant rains than in other more easterly parts of England. The surface of the county is very uneven in the north and eastern parts. Near the coast the land is level, and the soil consists of a good sand and over a rocky subsoil, or clay marl, which, when mixed with the topsoil, produces good vegetable crops. There are extensive tracts of pastures, but few very stiff cold clays, which abound in many other parts of England, and are very expensive in the cultivation.

From the most nature of the climate Lancashire is more productive in grass than in corn. The arable land is well cultivated wherever sufficient encouragement is given to the tenant by granting a lease for a considerable term. Many of the farms are considerable, and are occupied as domains by the larger proprietors. Several still retain the name of Hall or Manor Farm, but the subdivision of property has given rise to very small occupancies.

The total produce of the county is most valuable, and is produced by many different kinds of crops. Wheat is generally grown in the chief districts of the county, and is generally cultivated for market, and for the consumption of the inhabitants in the central and northern parts of the county. Wheat is sown where the land is favourable to it, as along the shore north of Lancaster, in the Fylde, and in the south-west part of the county.

Potatoes were early cultivated in the fields in Lancashire, and they retain their place in the market when the land is suitable, and not over-manured. The land which is broken up from grass produces the best flavoured potatoes without any additional manure; but when they are raised to feed cattle, they should be spaded, and very little will be obtained. Early potatoes are sometimes raised, with a crop of turnips after them the same year; then follows wheat or barley, and grass seeds. If the turnips are drawn off the land the next crop must be manured, or else the soil will be much impoverished. Sometimes two crops are raised in one year; the second is taken up in November, and immediately cut up into sets, which are preserved in straw or sand, in which they shoot early in the spring, and which are then planted out, and secured from frost by throwing litter over the beds when they first come up. Another method is to cut the sets, and put them on a room floor, where a strong current of air can be introduced at pleasure; they are laid very thin, and covered with sawdust or chaff, about two inches deep. They then shoot, and the air being let in when there is no frost, the shoots get strong. When they are an inch and a half long the covering is lightly removed to give access to the light. They remain growing till the time arrives for planting, when they are planted out carefully, and soon begin to throw out stems and leaves. They then bear slight frosts without much injury. The earliest potato is called the Superfine White Kidney. Several crops of this potato may be raised one after the other, with proper attention to forwarding the sets and planting them out carefully; and where there is a demand for young potatoes the profit is very great.

Meadows and pastures are very much more common in Lancashire than in other parts of England. Even the extent of grass which is kept for the purpose of bleaching linen on is very considerable, especially in the neighbourhood of Manchester, Bolton, and other manufacturing towns. While in other parts of England meadows and pastures are broken up and converted into arable fields, in Lancashire the reverse is the case, and many fertile arable fields have been laid down to permanent grass. There is a great inducement to do this, for the best meadow grasses and the white clover seem to find a peculiarly favourable soil in Lancashire, being increased by simply marring the land white clover springs up naturally. The demand for hay has caused great attention to be paid to the making and securing of it, and extensive hay-barns which admit the air freely have been erected in many places. [Barns are very necessary in this climate. In feeding cattle or cows for the dairy a good pasture will keep one head per acre during the summer, but there are many of which two or three acres are required to maintain a milch cow. Sheep are not abundant in proportion to cows; and there is not that attention paid to the breed of this useful animal which it deserves; the breeds commonly met with are the black-faced and the Cheviot. The improved Leicestershave gained a footing, and are generally produced on the farm. The original breed of oxen in Lancashire was one of the best in England until it was surpassed by the Leicestershire, 2 P 22]
which is only the same blood improved by careful selection. The animals of this breed have a great aptitude to fatten, and some of the cows are good milkers; but the farmers and dairymen, on account that if a cow or an ox has a good appearance in the market, the pedigree is never inquired into. Milk is a very important article of food in a populous district, where it can be sold as it comes from the cow; and the profit of a dairy is never so great as can be turned to account. Where the population is thinner, or the distance from towns is too great to carry new milk for sale, butter and cheese must be made. A great quantity of both is produced in Lancashire, and of a very good quality. The cheese is similar to that of Cheshire, and is thought to be superior to the Cheshire. There is no colouring whatever put into this cheese; but inferior kinds are frequently coloured to make them pass for Cheshire. The quantity of cheese made from one cow between April and November is about 360 lbs. Mr. Boys, in the 'Agricultural Survey,' has given an account of a cow of the Lancashire breed which gave 16 lbs. of butter, each of 18 ounces, or 18 lbs. avoirdupois in one week. She had had five calves, and was eight years old. The progeny of this cow, which was of the Lancashire long horned breed, kept up her reputation; but no trouble was taken to breed a pure breed from her. In 1795, at a farm near the Catholic College at Salford, the cows were kept in stalls and fed with boiled food, as is the case in Flanders. Weeds, nettles, and docks were collected and boiled with more succulent vegetables. Thus, nearly a year, an examination was given of the Flemish mode of feeding cows, without its having been followed in a single instance; and yet it is noticed with approbation. This proves how difficult it is to alter old customs in husbandry.

Many useful horses are bred in Lancashire, for which there is a great demand in the manufacturing towns. They are chiefly cart-horses of a hardy active sort; and, with a little attention, the rearing of them is profitable to the farmers as they are worked gently, and soon earn their keep; at five years old they bring a high price, if they have a good shape, and work well. The rich pastures make them grow to a large size, and look sleek when brought to a fair. There is nothing peculiar in the breed of swine. A great deal of pork and bacon is imported from Ireland.

Divisions, Towns, &c.—The county of Lancaster is divided into six hundred and six districts, as follows:

<table>
<thead>
<tr>
<th>Situation</th>
<th>Area in Acres</th>
<th>Pop. 1831</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amounderness</td>
<td>W.</td>
<td>145,110</td>
</tr>
<tr>
<td>Blackburn</td>
<td>Central</td>
<td>175,500</td>
</tr>
<tr>
<td>Leyland</td>
<td></td>
<td>79,990</td>
</tr>
<tr>
<td>Lonsdale (including the Borough of Lancaster)</td>
<td>N.</td>
<td>266,970</td>
</tr>
<tr>
<td>Salford (including the Borough of Manchester)</td>
<td>S.E.</td>
<td>214,870</td>
</tr>
<tr>
<td>West Derby (including the Boroughs of Liverpool and Wigan)</td>
<td>S.W.</td>
<td>234,730</td>
</tr>
<tr>
<td>Militia under training</td>
<td></td>
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<td></td>
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The hundred of Lonsdale is distinguished as Lonsdale north of the Sands (including the district of Furness), 137,490 acres (population in 1831, 24,311), and Lonsdale south of the Sands, 129,480 acres (pop. in 1831, 32,415). The hundred of Blackburn is also divided: the higher division has an area of 91,710 acres (pop. in 1831, 84,072); the lower division has an area of 88,880 acres (pop. in 1831, 83,953).

The county contains the borough, market, and port towns of Lancaster (pop. of borough in 1831, 12,618) and Fleetwood (pop. of borough in 1831, 189,242), the ancient borough and market towns of Clitheroe (pop. of borough in 1831, 5213), Preston (pop. of borough in 1831, 33,112), and Wyre (pop. of borough in 1831, 20,014); the decayed and now disfranchised borough of Newby, the electorate of which was disfranchised in 1826, and under the Reform Act of 1832, added to the Borough of Ashton-under-Lyne (pop. of parish in 1831, 33,597), Blackburn (pop. of the township and borough 29,071), Bolton-in-the-Moors (pop. of Great and Little Bolton and Hasling townships, forming the parliamentary borough, 1831, 42,395), Burnley, Bury (pop. of townships of Bury and Elton in 1831, 19,140), Cartmel, Chorley (pop. in 1831, 9252), Colne, Dalton, Garstang, Hesketh, Hwasingdon, Horbury, Manchester, Oldham, Rochdale (pop. of parliamentary borough in 1831, 50,513), Ormskirk, Poulton, Prescot, Rochdale (pop. of parliamentary borough in 1831, 20,156), Todmorden, Uttoxeter, Warrington, Wigan, and Wrexham. The towns and places are described elsewhere [Ash- ton-under-Lyne; Blackburn; Burnley; Bolton; Bury; Chorley; Clitheroe; Liverpool; Manchester; Oldham; Preston; Rochdale; Salford; Warrington; Wigan]. Of the others an account is subjoined.

Lancaster is in the hundred of Lonsdale, in the part south of the Sands, and on the south bank of the river Lune, not far from its mouth, 240 miles from London. The town suffered severely in the civil war, and was again the scene of contest in the civil war of Charles I.

The parish of Lancaster reaches into Amounderness hundred, and comprehends an area of 66,100 acres, or about 36 square miles, with a population of 22,828. The municipal borough of Lancaster comprehended 1240 acres, and had in 1831 a population of 12,013. Considerable additions were made by the Boundary Act for the purposes of parliamentary representation. The town stands on the slope of an eminence rising from the river. The summit of the eminence is crowned by the towers of the castle, a spacious edifice, comprising a large courtyard, some small yards, and several differently-shaped towers: it is now fitted up at a vast expense as a county goal and court-house, and the keep is very strong: the gateway, defended by two semi-octagonal projecting towers, is referred to the time of Edward III. The shire-hall and county-courts are modern. The streets of the town are narrow, and the most part narrow; the houses are built of freestone, which is quarried and dressed on the spot, and covered with slate. The church is on the same elevation with the castle: it is very spacious, and contains some fine specimens of screen-work; the tower is of modern erection. In the churchyard is the shaft of a Danish cross with Runic characters. There are two chapels of ease and several dissenting places of worship. There are assembly-rooms, a theatre, and public baths. A handsome stone bridge over the Lune, at the north-eastern extremity of the town, connected the suburb of Sandygate with the town of Wesham, almshouses, and in the neighbourhood of the town is the county lunatic asylum.

The port of Lancaster formerly had a considerable share of the West India trade, which is now in a great degree transferred to Liverpool; but it is still a port of the American, Russian, and a large and increasing coasting trade. The number of vessels which entered the port, which includes Preston, in 1832 was 580 (33 of them from foreign ports), and the aggregate tonnage of 36,207. The cotton manufacture has been within the last few years introduced into the town and neighbourhood.

The assizes for the northern division of the county are held at Lancaster. The council of the borough consists, under the Reform Act, of 18 councillors: the town was divided by the same act into three wards. The living is a vicarage, in the archdeaconry of Richmond, diocese of Chester, of the clear annual value of 1700£, with a glebe-house. The perpetual curacies of
St. Anne and St. John (the two chapels of ease) are respectively of the clear annual value of 113f. and 203f.

There were in the borough, in 1835, one infant school with 100 children; a grammar school, partly supported by the corporation, with 61 children; a Lancaster school, with 198 children; a Quaker’s school, partly endowed, with 30 children; and eight other day-schools, with 216 children; two national and one other day and Sunday schools, with 603 children, on a week day and 50 more on Sunday; and four Sunday schools, with 1175 children. From two boarding-schools and one Roman Catholic day and Sunday school no returns were made.

The remainder of the parish is divided into eleven townships, of which three parish churches are all in the gift of the vicar of Lancaster. There are several schools, some of them endowed, in those townships.

Carnforth is locally in the limits we have assigned to the district of Furness, but is said not to be ‘within the liberties of Furness’. It is 14 miles from Lancaster across the Sands. The parish contains 22,960 acres, and had, in 1831, a population of 4802. It is subdivided into seven townships or chapelry.

The town is in the townships of Lower Allithwaite and Upper Holker, in a narrow well-wooded vale watered by a small stream, and overhung on the east by the high ridge of Hampsfield Fell. The streets are narrow and irregular; the houses are chiefly built of stone. The church, which formerly belonged to a priory of the abbey of Furness, of the congregation of William Mareschal, earl of Pembroke, was purchased at the dissolution by the inhabitants, and afterwards made parochial. It is a large cross church in the early English style, with a central tower, a choir with richly ornamented stalls, and four large chantries: and two chancels, one of which is larger than the rest of the building. The population of the townships in which the town stands was, in 1831, 1933. There are cotton-mills at Upper Holker, but little trade is carried on there. The folk is on the Tuesday and a secular singing of seven hymns, on the second Thursday and three miles from the town. The living is a perpetual curacy, in the archdeaconry of Richmond and diocese of Chester, of the clear yearly value of 113f. There were in the whole parish, in 1833, four endowed schools, with 800 acres, of which three are endowed by the corporation of Carnforth. The parish contains 22,920 acres, with a pop. in the return of 1860: the township of Haweshead (one of four into which the parish is divided) contains 6700 acres, with a population of 797. There is no manufacture in the town, but the weekly market is considerable. The trade of the town being the centre of business for Furness Fells. There are four yearly fairs. There is a neat town-house; and near the town are the remains of an old building in which one or more monks, representatives of the abbot of Furness, performed divine service, and in which there was a quire of seven stalls.

Near Carnforth is Holker Hall, one of the seats of the Earl of Burlington.

Culne is in the higher division of the hundred of Blackburn. It is a perpetual curacy, in the archdeaconry of Richmond and diocese of Chester, of the clear yearly value of 113f. There were in the whole parish, in 1833, four endowed schools, with 800 acres, of which three are endowed by the corporation of Carnforth. The parish contains 22,920 acres, with a pop. in the return of 1860: the township of Haweshead (one of four into which the parish is divided) contains 6700 acres, with a population of 797. There is no manufacture in the town, but the weekly market is considerable. The trade of the town being the centre of business for Furness Fells. There are four yearly fairs. There is a neat town-house; and near the town are the remains of an old building in which one or more monks, representatives of the abbot of Furness, performed divine service, and in which there was a quire of seven stalls.

It is in the parish of Whalley, and near to the borders of Yorkshire. The chapel of Colne contains 8050 acres, and had, in 1831, a population of 8060. The town is situated on a dry and elevated ridge near the river Calder. The church is a neat, modernized building, erected in the time of Henry VII: on three sides of the choir are portions of an old and evidently carved wooden screen.

An ancient manor-house of the Lacies in this town was lately used as a workhouse. The chief manufacture of the place is that of cotton: the market is on Wednesday. The Leeds and Liverpool canal passes near the town. The neighbourhood yields slate, coal, lime, and freestone.

The living is a perpetual curacy, in the archdeaconry and diocese of Chester, of the clear yearly value of 179f., with a small endowment. There are seven other endowed schools, with 147 children; ten other day-schools, with 215 children; two boarding-schools, with 21 children; and seven Sunday-schools, with 337 to 247 children; beside which two of the national schools were Sunday-schools also, and 131 children.

Dalton in Furness is 25 miles from Lancaster across the Sands. The whole parish contains 16,210 acres, with a population, in 1831, of 3697; but Dalton township, one of the three into which the parish is divided, contains 770 acres, with 400 inhabitants. This town flourished at an early period through the neighbourhood and favour of the abbey of Furness, but on the dissolution of the abbey its consequence diminished. The town consists of a principal street terminating on the west in a spacious market-place. The church is a small building of the same antiquity. There is a square tower on a rocky eminence west of the town, the remains of a castle probably built by the monks of Furness to guard the northern approach to the abbey. This building is now appropriated to the courts leet and baron of the manor and liberty of Furness. The market is on Saturday: the chief trade carried on is malt; and there are some iron-works near the town. The living is a vicarage, in the archdeaconry of Richmond and diocese of Chester, of the clear yearly value of 113f., with a glebe-house. There were in the township, in 1833, two dame-schools, with 26 children; two endowed day-schools, with 180 children; ten other day-schools, with 189 children; and four Sunday-schools, with 420 children.

Garstang is in Amounderness hundred, on the north-west bank of the Wyre, and on the road from Preston to Lancaster, 229 miles from London and 11 from Lancaster. The town was, with a pop. of 6927; the township of Garstang contains 560 acres, with a pop. of 929. It is a poor town, though somewhat improved of late. The church is at what is termed Garstang Church town, a mile from the town itself. The town-hall, a decayed building, was rebuilt about ninety years since. The market is on Thursday; and there are three yearly fairs. The Lancaster Canal crosses the Wyre by an aqueduct close to the town. There are some cotton factories and a calico printing establishment in the neighbourhood. Garstang was incorporated by charter of Charles II.; the corporation, consisting of a bailiff and seven capital burgesses, was left untouched by the Municipal Reform Act. The living is a vicarage in the archdeaconry of Richmond and diocese of Chester, of the clear yearly value of 113f., with a glebe-house. There were in the township in 1833, one dame-school, with 5 children; a grammar-school with a small endowment, with 55 children; an endowed school for Roman Catholics, with 30 children on the endowment, and 35 other day-schools, with about 40 children; and four Sunday-schools with 328 children.

Hawkshead is in Furness, near the head of the small lake Bowness Water, on a brook flowing into the lake: it is 17 miles from Lancaster and 27 from London. It is in the parish of Cartmel. The parish contains 22,220 acres, with a pop. in the return of 1860: the township of Hawkshead (one of four into which the parish is divided) contains 6700 acres, with a population of 797. There is no manufacture in the town, but the weekly market is considerable. The trade of the town being the centre of business for Furness Fells. There are four yearly fairs. There is a neat town-house; and near the town are the remains of an old building in which one or more monks, representatives of the abbot of Furness, performed divine service, and in which there was a quire of seven stalls.

Hastingdon is in the lower division of Blackburn hundred, 16 miles from Manchester and 204 from London. It is in the parishes of Blackburn and Whalley, and contains a chapel containing 4228 acres, with a population in 1831 of 7776. The older part of the town is on the declivity of a hill, on which the church, a neat substantial edifice, rebuilt in the latter part of the last century, stands. This introduction of the manufactured has led to the enlargement and improvement of the town: a new square and many new buildings have been erected in the present century, chiefly at the base of the hill. The woollen manufacture, formerly the staple of the town, is still carried on to some extent; but the chief manufacture is that of cotton. The market is on Saturday; and there are several yearly fairs, chiefly for cattle and horses. The living is a perpetual curacy in the diocese and archdeaconry of Chester, of the clear yearly value of 179f., with a glebe-house. There were, in 1833, in the township, one school with a small endowment, with 46 children; nine other day-schools, with 310 children; and six Sunday-schools, with 1736 children.

Hornby is in Lonsdale hundred, south of the Sands, 9 miles north-east of Lancaster, and in the parish of Melling; the chapelry of Hornby contains 2290 acres, with a population in 1831 of 307: the population had decreased in the
preceding ten years owing to families removing to the manufacturing districts. The town is on the banks of the river Irwell, which flows into the Lune. Horbury Castle, near the town, the antient seat of the Stanleys, Barons Montagle, is now fitted up as a modern mansion. In the neighbourhood are some remains of a fort ascribed to the Saxons, and of an antient religious house. The church is surrounded with a curfew, and the market, held every alternate Tuesday, is well attended: it is chiefly for cattle; there is a yearly fair. The living is a perpetual curacy in the archdeaconry of Richmond and diocese of Chester, of the clear yearly value of £228. There were nineteen children in 1832, in 44 day-schools, and one Sunday-school, with 40 children.

Kirkham is in the hundred of Amounderness, 40 miles from Manchester and 226 from London. It is about 8 miles in length, and about 5 in breadth; and the market town of Kirkham, which is at the mouth of the Ribble. The parish contains 41,850 acres, with a population in 1831 of 11,630: it is divided into seventeen townships or chapelleries; the township of Kirkham contains 850 acres, with a population of 2469: the population of the township had materially decreased between 1821 and 1831. The town is small, but the houses are tolerably good. The church was rebuilt in 1822, but the antient tower of Norman architecture remains. There are two endowed grammar-schools or Cathe-drums. The chief manufacture of the town is cotton; but some sail-cloth, sacking, and cordage, formerly the staple of the place, are made. The market is on Tuesday, and there are two yearly fairs. The living is a vicarage in the archdeaconry of Richmond, in the diocese of Chester, and in the deanery of Dock; with a clear yearly value of £921, 14s. 1d., with a glebe-house. There were in the township in 1833, six dame schools, with 104 children; five endowed schools (one of them a well endowed grammar-school, two in which Causton endowed 21 scholars); and five other day-schools, with 152 children; and five Sunday-schools (one endowed), with 443 children.

Leigh is in the hundred of West Derby, 737 miles from London, on the road from Newton to Bolton. The parish comprises 9,820 acres, with a population in 1801 of 20,053. It is subdivided into the six townships of Astley or Astleigh (East Leigh) (population 1832); Atherton (pop. 4181); Bedford (pop. 3987); Poulton (pop. 3165); Tyldesley with Shakerley (pop. 5593); and West Leigh (pop. 2760). The townspeople are engaged in the manufacture of cottons and fustians. There are collieries and stone quarries in the parish. The district round the town is occupied by dairy farms, and is famous for cheese. Leigh communicates with Manchester by the Duke of Bridgewater's Canal, and with the Leeds and Liverpool Canal by a branch canal to Wigan. A railway from Bolton by this town communicates with the Liverpool and Manchester Railway. The living is a vicarage in the archdeaconry and diocese of Chester, and in the deanery of Astley, with a clear yearly value of £223, 14s. 11d., with a glebe-house. Atherton and Asly townships constitute distinct chapelleries. There were in the six townships in 1833, six infant or dame schools, with 162 children; two partially endowed day-schools, with 90 scholars; twenty-six other day-schools, with 923 scholars; and eighteen Sunday-schools, with 3940 scholars.

Middleton is in Salford hundred, 63 miles north by east of Manchester, and 1224 from London, near the river Irwell which flows into the Lune. The parish contains 11,310 acres, with a population in 1831 of 14,579: it is divided into eight townships or chapelleries; Middleton township contains 1860 acres, with a population of 6993. This town owes its prosperity to the cotton manufacture, which is carried on in its different branches. A charter for a market was granted in 1791: it is held on Friday. A market-house with shambles, also warehouses for general merchandise, were erected by Lord Sutherland, lord of the manor. Coals are dug in the parish. The church is an antient building, with a carved screen dividing the chancel from the chancery. There are several dissenting places of worship. The living is a rectory in the archdeaconry and diocese of Chester, of the clear yearly value of 1070l., with a glebe-house. There were in the township, a grammar-school, founded and endowed by Dr. Alexander Nowell, dean of St. Paul's, London, with about 100 children; a school with 33 children, partly supported by Lord Sutherland; and thirteen other day-schools, with 591 children; and one boarding-school, with from 60 to 80 children; and ten Sunday-schools, with 2644 children.

Newton is in West Derby hundred, locally between Manchester and Liverpool, but not on the road between those towns. It is on the river Lune. Newton is a chapelry in Winwick parish, and contains 3670 acres, with a population in 1831 of 2139. The place consists chiefly of one street; it has an antient court-house, now used for a school. There is a market-cross, though no market; the market-place, or town-square is a borough by prescription, and returned two members to parliament from 1 Elizabeth, till it was disfranchised by the Reform Act. The chapel is a comparatively modern building. The living is a perpetual curacy, of the clear yearly value of 29l., with one day-school for the children of the parish. There were in 1833 one endowed school, with 54 children; three other day-schools, with 219 children; and two Sunday-schools, with 277 children.

Ormskirk is a market town, 12 miles north by east of Liverpool and 219 from London. The parish contains 31,150 acres, with a population in 1831 of 14,053, and is divided into seven townships or chapelleries: the township of Ormskirk contains 560 acres, with a population of 4251. The town consists of four principal streets, which intersect each other at right angles. The church is mostly modern, with a few portions of late perpendicular character; it has a large western tower at the end of the nave, and another tower and spire at the west end of the south aisle. This church contains the burial-chamber of Old Cotton and linen thread, silks, hats, and rope, are manufactured here, but not extensively. There is a weekly market: and two yearly fairs. Coals are dug in the parish; and a small quantity of sand is manufactured from the sandstone in the vicinity of the town. A number of cotton, and some if silk, are manufactured here, and the cotton trade is increasing. The market is on Tuesday, and the fairs on Tuesday, and the first Saturday of each month. The town contains 437 houses, with 2191 inhabitants.

Poulton in the hundred of Amounderness, 164 miles northwest of Preston and 234 from London. The parish contains 3272 acres, with a population in 1831 of 1125, and in 1832 it is divided into five townships; that of Poulton contains 1150 acres, with a population of 1025. The town is about a mile from the estuary of the Wyre. The church was rebuilt in the last century, except the tower, which is of the time of Charles I. There are three or four dissenting places of worship. The living is a vicarage in the archdeaconry of Richmond and diocese of Chester, of the clear yearly value of 567l., with a glebe-house. The town has neither trade nor manufactures. There were in the township in 1833 six day-schools with 108 children, and two Sunday-schools with 300 children. The endowed grammar-school of Hardhorn township in this parish is free to the children of Poulton township; in 1833 it had 140 children. The market is on Wednesday, and the fairs on the 1st and 2nd of each month. The township contains 34,920 acres, with a population in 1831 of 28084. The township of Prescot contains 460 acres; pop. 5985. There are extensive collieries in the parish. Among the principal manufactures are those of small files, and the movements and other parts of watches, also coarse earthenware, especially sugar-moulds, sail-cloth, and cottons. The market is on Tuesday. The Liverpool and Manchester railway passes near the town, and the coach-road between those towns passes through it. The church consists principally of one long street along this road. The church is antient and large; the tower and spire are of modern erection. There are several dissenting meeting-houses.
The Liverpool and Manchester railway and the Lancaster canal pass near the town, and there is a railway station of St. Helen's to Rungrail Gap on the Mersey.

The town is in Salford hundred, 214 miles from Manchester and 2074 miles from London. The town is partly in the township of Eccleston, and partly in that of Poynton (pop. 3904), in the parish of Eccleston, and partly in that of Poynton (pop. 3904), in the parish of Eccleston.
LAN 296 LAN

this county was comprehended in the diocese and province of York. After the establishment of the West Saxon supremacy, the southern part of the county was added to the diocese of Lindisfarne and the province of Canterbury. In the year 1541 the disunited portions of the county were re-united in the new diocese of Chester, formed by Henry VIII., and have continued united to the present time. The county is divided between the two archdeaconies of Chester in the south and Richmond in the north. The division of the Chester deanery ends the four rural deaneries of Blackburn, Leyland, Manchester, and Warrington; that of Richard contains the deaneries of Amounderness and of Furness and Cartmel. By an order in council just promulged, pursuant to the act 6 and 7 Will. III. c. 29, the whole of the county (except the deanery of Furness and Cartmel, which is to be added to the diocese of Carlisle) is to form the new diocese of Manchester, in the province of York. The collegiate church of Manchester is to become the cathedral of the new archdeacon, and the rectors, vicars, and others are to be the dean and canons. The revenue of the new see is to consist of an endowment averaging 4500l. per annum. The parishes are comparatively few: there are only sixty-eight, including Burton in Kendal, which is chiefly in Westmoreland, and Minton and Oldham, which extend into Yorkshire. Twenty-six of these parishes are rectories, twenty-nine vicarages; the rest perpetual curacies. The rectory of Winwick, one of the richest in the kingdom (clear annual value 3616l.), is in this county.

The county is extensive; the parish (108,140 acres) and Lancaster (66,100 acres) have been already noticed. Oldham parish (58,620 acres), Blackburn (45,620 acres), Kirkham (41,850 acres), Preston (34,920 acres), Manchester (31,050 acres), Bolton (28,240 acres), and Wigan (21,150 acres), are next in extent. Of the remaining fifty-nine parishes twelve consist of above 20,000 acres, and eighteen of above 10,000. There are however numerous dependent district chapellies; and many chapels-of-ease and new churches have been built.

The Dissenters form a considerable body in the large manufacturing towns, and the Wesleyan Methodists are particularly numerous. There is also a very considerable body of Roman Catholics.

Lancashire is in the northern circuit. The assizes were till of late years held at Lancaster alone, but they are now held at Lancaster for the northern division of the county, comprehending the hundreds of Lonsdale, Amounderness, Blackburn, Leyland, and at Liverpool for the southern division, consisting of the two hundreds of Salford and West Derby. The quarter-sessions are held at Lancaster, and by successive adjournments at Preston, Salford, and Liverpool.

By the Reform Act the county was divided into two parts for parliamentary purposes. The division coincides with that for judicial purposes. The election for the northern division takes place at Lancaster: the polling-places are Lancaster, Ulverston, and Bromley. The election for the southern division takes place at Newton: the polling-places are Newton, Wigan, Manchester, Liverpool, Ormskirk, and Rochdale.

Fourteen members were formerly returned to parliament for this county; viz., two for the county itself and two each for the boroughs of Lancaster, Clitheroe, Liverpool, Newmarket, Preston, and Wigan. By the Reform Act Newton was disfranchised and Clitheroe reduced to one member: but the disfranchisements were confirmed by the act of four new boroughs, Manchester, Bolton, Blackburn, and Oldham, each returning two members; and of five, Ashton-under-Lyne, Bury, Rochdale, Salford, and Warrington, each returning one member, has raised the whole number to twenty-six.

Lancaster, as a county palatine, possesses a chancery court. At an early period the county was distinguished as an honour, or superior feudal lordship. In the time of Henry III. the honour was erected into an earldom, in favour of the illegitimate son of John of Builiac, second son of that king. In the time of Edward III. the earldom was erected into a duky in favour of Henry Plantagenet, the then earl, and afterwards of John of Gaunt, who had married the heiress of Henry, and for whom the county was named. John of Gaunt procured an act of parliament that the title and revenues should remain to him and his heirs for ever, as a distinct and separate inheritance from the crown; but in the time of Edward IV. the duky was declared forfeited to the crown, to which, by act of parliament, both it and the county palatine were inseparably united. The chancery court has a chancellor, attorney-general, and other functionaries, and has an equity jurisdiction within the limits of the duchy.

History and Antiquities. In the earliest period of English history this county was inhabited chiefly by the Brigantes (Brigantes, Pulemy), the most numerous and powerful of the tribes which then possessed the island. A Pulemy has given the name of Scuriulw lymun, Haven of the Setantii (Scuriulw lymun), of which the Lune, according to others) in this county, it is likely that a tribe called Scuriulw, Setantii, occupied the northern part. The Brigantes were subdued by Agricola, and in the subsequent division of Britain Lancashire was included in a province comprehended in the dominions of the province of Cartama, which contained all the country from the Mersey, the Don, and the Humber, to the Roman wall.

Several places mentioned by ancient geographers are not yet accurately identified with positions in this period of British history. Carin, for instance, has retained its name with scarcely any change; the carinolw lymun has been noticed; the Belisama, which Horsley supposed to be the mouth of the Mersey, is now near the city of Manchester; Flavius, the mouth of the Ribble, is near Preston; and Flavius, the mouth of the Dee, has been transferred to the bay which receives both the river and the Mersey. Pridnovs, one of the towns of the Brigantes mentioned by Pulemy, is supposed to be The Culre, or Culwe, near Manchester. The Roman city of Carnuntum, now identified with Carnuntum (31,150 acres), of the Cunomagus, now Carnforth, is now a town of Lancashire.

Of the stations of the Antonine Itinerary, Mancunium is identified with Manchester, and Coccium with Ribchester, on the north bank of the Ribble, midway between Preston and Blackburn. Lancashire, being the territory between Blackrod, between Manchester and Preston, others at Cockey or Cockley, near Bury, and others again at Bury itself; Bremetona or Bremetacium is fixed by some at Lancaster, and by Camden and others, with more reason, at Warrington; but the only town between them and the Dee is Voluntum, in the neighbourhood of Kirkby Lonsdale.

In Richard of Cirencester's map Morium is marked as a river, and the Alana, Beisam, and Setan are evidently identified with the Lune, the Ribble, and the Mersey. His Portus Sutantii (Scuriulw lymun of Pulemy) is so given in his map and his Itinerary, as best to accord with the mouth of the Lune: the Setantii however extend along the coast at least as far south as the Belisama, or Ribble, and another tribe, the Voluntii, whom he describes as confederated with them, occupy the more inland tract immediately to the west of the great Pennine chain, as far south as the Setoia, or Mersey. Mancunium is not given in his map, though it is mentioned by him in his account of Coccium, in the region of the Mersey, at or near Ribchester, and Reginorium agrees in position with Lancaster: possibly Ad Alanaum, which he mentions in his Itinerary, is another name for the same place. It would appear that the station on the map at Preston near Ribchester was included in the station at the town, and the first syllable ' Lan,' or, as it is properly pronounced, ' Lon,' accords well with the name ' Ad Alanaum,' as well as with the first syllable of Longovia, a station mentioned in the Notitia, which Camden is decided in placing here. If the Reginorium and Ad Alanaum of Richard be fixed here, there is an additional reason for fixing the station on the map at Ribchester; and if they are identified with Coccium, in the region of the Ribble, it is reasonable to suppose that Reginorium, as well as the other names, was entirely distinct from each other.

Several Roman roads have been traced in this county, and the direction of these may enable us to determine between the positions assigned to the above stations. Six of them diverge from Manchester (Mancunium) as a common centre. One runs north-west to Blackrod, and another north to Ribchester, the position most reasonably assigned to Coccium; two others run into Cheshire, one south-east by Stockport, another south-west by Stretford, supposed to be the Fines Pavium et Maxima mentioned by Richard. Two others run into Yorkshire, one to Ripon, another to York, via Tadcaster; one, which branches from the foregoing, more easterly toward Oldham, Saddleworth, and Almondbury. The road to Ribchester is continued northward in the direction of Ribchester and Lancaster. One branch led from Ribchester to Flockton on the north side of the estuary of the Ribble, and another from Overthorpe to Lancaster, the Ad Alanaum and Reginorium of Richard. It has been supposed that a Roman road entered
the county at Warrington, and ran northward by Blackrod and Preston to Lancaster. A veined way led from the
neighbourhood of Manchester to Warrington.

All traces of the station Mancombe have disappeared;
but the ruins of several churches are still visible at
Rochester and Overborough. Various antiquities have
been dug up or found at each of these places: at Man-
chester, some inscriptions on stones; at Rochester, various
Kings of England, including Martin Luther; and at
Overborough, a number of Irish under Lord Gerardine, landing in Lancashire, to support the cause of the impostor Lambert Simnel. In
the reign of Henry VIII. when the rebellion known as
the Pilgrimage of Grace took place, the populace of Lan-
cashire rose, but were put down by the ears of Shrewsbury
and Derby. In the civil war of the Roses no event of importance occurred in Lancashire, but
when the Earl of Lincoln and Lord Guildford, father of
another Earle, was slain at the battle of Flodden, the
Confessor's abbey was captured by the Earl of Northumberland. In the reign of Henry VIII. was
incurable, and the line of division is nearly or quite coincident
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Manchester about 4000 collectively: Pendleton 850; and besides all these there are 18,000 in the numerous manufacturing townships of this populous hundred. In the hundred of West Derby the town of Wigan contains 2600 men engaged in manufactures; the parish of Leigh 2800; and other places about 3000. The makers and repairers of spinning-jennies, looms, and other machinery employed in the cotton, silk, and woollen manufactures, are very numerous, but are mostly connected with the cotton factories in such manner as to preclude any distinct mention.

The number of woollen manufacturers in this county is comparatively unimportant: the number of men employed in worsted-mills and as fullers, makers of baize, blankets, and flannels, being about 2700, chiefly at Newchurch in Whalley parish, in Rochdale and at Bury.

At Chorlton-Row, near Manchester, 1900 men are employed as workers in iron and brass; at Ashton 240, at Prescot 24, in the parish of Ulverstone 14. The manufacture of hats employs 250 men in several of the townships in the parish of Manchester, and 300 at Oldham. In the parish of Prescot 200 men are employed in making glass bottles and in glass-grinding, and 50 at West Derby. There are manufactures of pins and of sailcloth at Warrington; the amount of work employed in making sailcloth at Prescot; and at Liverpool 340 men are engaged in various manufactures usual in a large seaport town.

The following Table is a Summary of the Population, &c., of every Hundred, &c., as taken in 1831.

<table>
<thead>
<tr>
<th>HUNDREDS, TOWNS, AND BOROUGHS</th>
<th>HOUSES</th>
<th>OCCUPATIONS</th>
<th>PERSONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inhabitants</td>
<td>Families</td>
<td>Building</td>
</tr>
<tr>
<td>Amounderness</td>
<td>12,847</td>
<td>13,508</td>
<td>99</td>
</tr>
<tr>
<td>Blackburn</td>
<td>29,509</td>
<td>31,249</td>
<td>976</td>
</tr>
<tr>
<td>Leyland</td>
<td>8,135</td>
<td>8,551</td>
<td>134</td>
</tr>
<tr>
<td>Lonsdale (North of the Sands)</td>
<td>4,603</td>
<td>4,753</td>
<td>20</td>
</tr>
<tr>
<td>Lonsdale (South of the Sands)</td>
<td>2,954</td>
<td>2,692</td>
<td>29</td>
</tr>
<tr>
<td>Saltford</td>
<td>25,565</td>
<td>25,901</td>
<td>608</td>
</tr>
<tr>
<td>West Derby</td>
<td>29,822</td>
<td>31,390</td>
<td>503</td>
</tr>
<tr>
<td>Lancaster (Borough)</td>
<td>2,072</td>
<td>2,173</td>
<td>7</td>
</tr>
<tr>
<td>Liverpool (Borough)</td>
<td>29,546</td>
<td>29,122</td>
<td>1,209</td>
</tr>
<tr>
<td>Manchester (Town)</td>
<td>29,621</td>
<td>28,888</td>
<td>80</td>
</tr>
<tr>
<td>Wigan (Borough)</td>
<td>3,570</td>
<td>3,998</td>
<td>4</td>
</tr>
</tbody>
</table>

The population of Lancashire at each of the following periods was as under—

<table>
<thead>
<tr>
<th>Date</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1801</td>
<td>350,375</td>
<td>350,375</td>
<td>700,750</td>
<td>0</td>
</tr>
<tr>
<td>1811</td>
<td>394,104</td>
<td>394,104</td>
<td>788,218</td>
<td>87,468</td>
</tr>
<tr>
<td>1821</td>
<td>456,376</td>
<td>456,376</td>
<td>912,752</td>
<td>124,534</td>
</tr>
<tr>
<td>1831</td>
<td>512,738</td>
<td>512,738</td>
<td>1,025,476</td>
<td>132,724</td>
</tr>
</tbody>
</table>

The saving effected in the sums expended in 1837, compared with that expended in 1834, was therefore about 37½ per cent.; and the saving effected, comparing the same periods, in the expenditure for the relief of the poor, was 2 per cent.

The number of turnpike trusts in Lancashire, as ascertained in 1833, under the Act 3 and 4 Wm. IV, chap. 62, was 62; the number of miles of road under their charge was 631. The annual income arising from tolls and parish perquisites in lieu of statute duty was, in 1833, 139,337l.; and the annual expenditure in the same year was as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual labour</td>
<td>£30,407</td>
</tr>
<tr>
<td>Team labour and carriage of materials</td>
<td>20,141</td>
</tr>
<tr>
<td>Materials for surface repairs</td>
<td>16,369</td>
</tr>
<tr>
<td>Land purchased</td>
<td>1,037</td>
</tr>
<tr>
<td>Damages done in obtaining materials</td>
<td>1,037</td>
</tr>
<tr>
<td>Tradesmen's bills</td>
<td>237</td>
</tr>
<tr>
<td>Salaries of treasurer, clerk, and surveyor</td>
<td>2,770</td>
</tr>
<tr>
<td>Law officers, remun. &amp;c.,</td>
<td>1,345</td>
</tr>
<tr>
<td>Interest of debt</td>
<td>36,171</td>
</tr>
<tr>
<td>Improvements</td>
<td>1,652</td>
</tr>
<tr>
<td>Debt paid off</td>
<td>15,056</td>
</tr>
<tr>
<td>Involuntary expenses</td>
<td>3,272</td>
</tr>
<tr>
<td>Estimated value of statute duty performed</td>
<td>229</td>
</tr>
</tbody>
</table>

Total expenditure: £143,869
The county expenditure in 1834, exclusive of that for the relief of the poor, was 39,160l. 3s. 4d., disbursed as follows:

<table>
<thead>
<tr>
<th></th>
<th>£</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridges, building and repairs, &amp;c.</td>
<td>116</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Gaols, houses of correction, and maintaining prisoners, &amp;c.</td>
<td>2,479</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Lunatic asylums</td>
<td>1,934</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Prosecutions</td>
<td>19,903</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Clerk of the peace</td>
<td>7,782</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Conveyance of prisoners before trial</td>
<td>3,075</td>
<td>18</td>
<td>5</td>
</tr>
<tr>
<td>Conveyance of transports</td>
<td>1,949</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Vagrants, apprehending and conveying</td>
<td>512</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Constables, high and special</td>
<td>1,963</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Coroner</td>
<td>2,199</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>2,467</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

Total expenditure: 39,160l. 3s. 4d.

The number of persons charged with criminal offences in the three sessions ending with 1829, 1827, and 1834, were 16,563, 13,873, and 16,064, respectively; making an average of 15,099 annually in the first period, of 1829 and the second period, and of 2293 in the third period. The number of persons tried at quarter-sessions in the five years ending 1834, was 1833, in respect of whom only 80s. were paid out of the county-rate, was 1705, 1966, and 1918 respectively.

Among the persons so charged with offences there were committed for:

- Pelonies: 1691
- Felonies: 1801: 1829: 1834
- Misdemeanors: 77

There is no return of the committals in each of the same years, nor of the number convicted or acquitted.

At the assizes and sessions in 1837 there were 2809 persons charged with criminal offences in this country. Of these 167 were charged with offences against the person, and of which were for common assaults, 111 persons were charged with offences against property committed with violence, 2292 with offences against property committed without violence; 5 were committed for arson, 3 for forgery, or uttering counterfeit money, &c., and 179 for riot or various other misdemeanors. Of the whole number committed, 2190 were convicted, 374 were acquitted, and as respects the remaining 245 no bill was found, or there was no prosecution. Of the whole number of persons convicted, 12 were sentenced to death, but none were executed, their sentences being commuted, 8 to transportation for life, 1 for 15 years, 2 for 7 years, and 7 to different periods of imprisonment not exceeding 2 years; 30 were sentenced to transportation for life, and 111 for different periods; 1 was sentenced to 3 years' imprisonment, 72 for not more than 2, 5 for 3 years and 6 months, and 133 for 6 months or under; 12 were whipped or fined, and one was pardoned. Of the whole number of offenders, 2171 were males and 638 were females; 1259 could neither read nor write; 1349 could read and write imperfectly; 160 could read and write well; 156 had received superior instruction; and the degree of instruction of the remaining 30 could not be ascertained.

The number of persons registered in 1837 to vote for county members was—in the northern division 9691; in the southern division 17,784; together 27,445. Of these 16,559 were freeholders, 2527 leaseholders, 1263 copyholders and occupying tenants, 253 trustees, 35 mortgagees: total 27,145; being one in 48 of the whole population, and one in 2 of the male population twenty years and upwards, as taken in 1831. The expenses of the last election of county members to parliament were to the inhabitants of the county 45l. 7s. 3d., and were paid out of the general county fund.

The county contains 25 savings' banks; the number of depositors and amount of deposits on the 29th of November, each of the following years, were as under:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of depositors</th>
<th>Amount of deposits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1835</td>
<td>28,007</td>
<td>£2,010</td>
</tr>
<tr>
<td>1836</td>
<td>33,613</td>
<td>£2,744</td>
</tr>
<tr>
<td>1837</td>
<td>40,061</td>
<td>£4,589</td>
</tr>
</tbody>
</table>

The various sums placed in the savings' banks in 1835, 1836, and 1837, were distributed as under:

- £15,141 470,394 1,075,318 1,139,567 4,394,058 6,317,594

The schools established by Dissenters, included in the above statement, are:

- Schools.
- Infants.
- Dafties.
- Sunday-schools.

The schools established since 1818 are:

- Schools.
- Infants.
- Sunday-schools.

Eighty-four boarding-schools are included in the number 2 Q 2
of daily schools given above. No school in this county appears to be confined to the children of parents of the Established Church. In the establishment of any other species of denominations, such exclusion being disclaimed in almost every instance, especially in schools established by Dissenters, with whom are here included Wesleyan Methodists and Roman Catholics; the latter, to the amount of 16,916 children, are disfranchised. Hence they return no returns from the county.

There are lending-libraries of books attached to 321 schools in the county of Lancashire.

LANCASTER. [Lancashire.]

LANCASTER, or JAMES, a skilful seaman, who rendered for his services the honour of knighthood from Elizabeth, conducted the first voyage undertaken by the newly constituted East India Company, A.D. 1600-3, and established commercial relations with the princes of Achin in Sumatra. He landed in Java in 1599, and arm supplied in his north-west passage; and his authority had much weight in promoting the numerous attempts made in that enterprising age to discover one. Lancaster's Sound, a deep inlet in Baffin's Bay, 74° lat., was named after him by Baffin, one of our most successful explorers. It is nearly certain, from the last discoveries, that this inlet does actually lead into the Arctic Ocean, north of America. Relations of Sir J. Lancaster's first voyage to the East Indies in 1591, and of a successful predatory voyage against the Portuguese in the South Seas in Houty's Voyages, vol. ii. is his voyage to the East Indies 1600-3 is contained in Purchas's Pilgrims, vol. i. He died in 1620.

LANCLOT, CLAUDE. [PONT ROYAL.]

The genus of a crustacean established by Mr. Say on a single species, Lancelotapagica, two females of which only he appears to have seen taken on the coast of America, in the Gulf Stream. M. Desmarest is of opinion that the genus belongs to the Amphipoda by reason of its vesticular chelae branchiaceae, to the number of ten, placed at the internal base of the feet, except those of the first and seventh pairs, and that it especially approaches Phronima in its caudal appendages, which consist of three pairs of long slender and supported by depressed linear peduncles annexed to the sides by three rings which compose the tail. Its mouth, provided with two triarticulate dilliform palps and bidental jaw-feet, bears analogy to that of the Clopatitis. Its general form is that of the genus Praniza (which M. Desmarest considers to be an Isopod); its antennae, composed of four joints, have the last joint not divided, and the inferior antennae are the longest. The superior antennae have their base hidden. The eyes are elongated; the front is concave; the feet are four-sided; the tail has a simple, and simple joints are compressed, and the sixth is the longest. The head is short and transverse. The body is soft, and covered with membranous integuments; the tail is depressed, narrower than the rest of the posterior segment is attenuated between the posterior caudal styles.

LANCEROTA, or LANZAROTE. [CANARIAS.]

LANCIANO. [ABruz]o.

LAND in its most restricted legal significance is confined to arable ground. In this sense the term is construed in original writs, and in this sense it is used in all correct and formal pleadings. By the late statute of Wills, 1 Victoria, c. 26, s. 26, a devise of the land of the testator generally, or of the land of the testator in any place or in the occupation of any person mentioned in the will, is to be construed to include customary, copyhold, and leasehold estates to which the description will extend, as well as freehold estates, unless a contrary intention appear by the will. By the same Act, legal anterior land extends also to meadow, pasture, woods, moors, waters, &c. ; but in this wider sense the word generally used is lands: the term land or lands is taken in this larger sense in conveyances and contracts.

In conveying the land, houses and other buildings erected thereon, as well as mines, &c. under it, will pass with it, unless specially excepted. A grant of thevasture of certain land is more restricted, and transfers merely a particular or limited right, and not the mere house and house or other real things, which are considered as part or parcel of the inheritance, are not conveyed, but only corn, grass, underwood, &c., the produce of the land. Other limited or particular rights, as fishing, cutting turf, &c. may be granted without more, and as if they are called, the reality, but only the benefit of such particular

priveleges. But a grant of the fruits and profits of the land conveys also the land itself. Absolute ownership of land includes the right to cut timber, to mine, to dig clay, to take minerals, waters, &c., and also upwards, agreeably to the maxim, 'cujus est solum, ejus est usque ad caulum.'

Ownership of land is expressed in the English law by the term real property, in contradistinction to personal property, or estate in money. In some parts of England the word 'land' is frequently used to denote the fee simple as distinguished from a less estate, without reference to the nature of the property.

It is understood to say, A has a house such an A, B has a house, & B has the land, i.e. the possession or remainder in fee.

Land is legally considered as enclosed from neighbouring land, though it lie in the middle of an open field, and may be so considered, because the right of an open field is so closely connected with the right of a house, that this ideal close into as many ideal parcels as he pleases, and may, in legal proceedings, describe each of these parcels, however minute, as his close. An illegal entry into the land of another is therefore called, in law, breaking and entering his close, and the remedy is by the action of trespass 'Quare clausum fugit;' it having been necessary, when writs were framed in Latin and all common law proceedings were entered on the rolls of the court in that language, to treat the lands of every person as his 'close;' or the party's claim, by which the action was commenced, and also in the declaration wherein the nature of the injury was more circumstantially detailed.

Land dierelic, or left dry by the sudden receding of the sea, or by the subsidence of the land, can be converted by the king by his prerogative; but land formed by alluvion, that is, by gradual imperceptible receding of any water, or by a gradual deposit on the shore, accurses to the owner of the adjoining land.

[Doctor and Student; Co. Litt.; Conyngh Dig.]

LAND-TAX is a branch of the public revenue of England, which was first raised in its present form in 1692. It was contrary to the spirit of the feudal system that peculiar liberties should be taxed, as a duty of personal service, the personal military services of the tenants being in this and in other countries considered as entitled to exemption from tallage, or direct taxation. The first step toward this principle in England was the payment of escheats as a commutation for personal service. This was followed by pecuniary grants made by parliament in the form of subsidies upon the abolition of the military tenure by the Long Parliament, which was afterwards confirmed by the first parliament of Charles II. ; the ground of exempsthe] that it was as well as personal estate, was made subject of assessment.

Until 1799 the land-tax was granted by parliament for only one year, and the acts under which it was levied were removed out of the revenues; but in that year the land tax was ordered perpetual, the object of this alteration being to facilitate the raising of money by means of its redemption.

Under the conditions of this act the tax was offered for sale first to the owner of the land upon which it was chargeable, and if the purchaser were declined by him to any other person, in which latter case the purchaser was to receive the amount half-yearly from the receiver-general. The payments were in either case to be made not in money, but by the transfer of an equivalent amount of the national debt. This scheme stipulated in the part of the public was that if redeemed by the owner of the land, the interest or annuity transferred in payment should exceed the annual amount of the tax redeemed by 10 per cent.; and if purchased by the government in its own name, or on behalf of its own creditors, it should exceed that annual amount by 20 per cent.: for example, if the land-tax to be redeemed by the owner amounted to 6l. per annum, the sum of 3 cents. stock to be paid for the same which could be 162 & 6s. 8d., the annuity in respect of which would be 6l. 10s. or 10 per cent. advance upon the tax. If the purchaser were a stranger, the amount of 3 cents. stock would be 204l., or an annuity of 6l. per annum, being 50 per cent advance. This measure met with only a partial success in the expenses of trees, mines, and other real things, which are considered as part or parcel of the inheritance, are not conveyed, but only corn, grass, underwood, &c., the produce of the land. Other limited or particular rights, as fishing, cutting turf, &c. may be granted without more, and as if they are called, the reality, but only the benefit of such particular
LAN, the districts of Chalosse and Marssan inland, toward the east; Les Landes do Bordeaux, in the neighbourhood of that city; Les Petites Landes, between Bazas and Mont de Marssan; and finally, about the middle of the Gironde, from 35° to 37° longitude, the central parts of this extensive waste. The former highway from Bordeaux to Bayonne, and into Spain, ran direct through Les Grandes Landes; but has been abandoned for a more circuitous inland route through Les Petites Landes, between Bazas, Mont de Marssan, and Dérins. The physical characteristics of the country are noticed in the following article.

LANDES, a department in the south-west of France, bounded on the north by the Gironde; on the south by those of Lot et Garonne and Gers; and on the south by that of Basses Pyrénées: on the west it is bounded by the coast running in an almost undeviating line north and south to the mouth of the Adour. The form of the department is that of a quadrilateral of which the northern side 73 miles long, its eastern side 42 miles, its southern side 60 miles, and its western side, or coast line, 69 miles. Its area is estimated at 463 square French leagues (25 to a degree), or 3541 square English miles, just about the area of the two English counties of Norfolk and Suffolk. The population in 1836 was 284,918, or above 80 to a square mile, showing the density of the population to be very little more than half the average of France; and far below that of England everywhere. The estimated wealth of Mont de Marsan, the capital, is in 43° 53' N. lat. and 0° 30' W. long.; 362 miles in a direct line south by west of Paris, or 467 miles by the road through Orléans, Blois, Tours, Poitiers, Angoulême, Bordeaux, and Bazas.

The surface is generally flat. There are many bare hills which separate the basin of the Adour from that of the Garonne; skirts the large department on the north-east side, and some of the lower slopes of the Pyrénées extend into it on the south, but it has no considerable elevations. The rocks which pervade it generally belong to the supercretaceous group, but just on the southern border the strata between the chalk and the newer red or saliferous sandstone crop out; chalk is not found. This southern part of the department is well supplied with water. Along the coast is a range of sandy downs, skirted on the land side by a line of clumps, or pools, of which those of Orx, Tossa, Soustons, Vieux Bouque, Léon, St. Julien, Aurellan, Parentes or Biscarosse, and Sauquet or Cazaun, are the chief. The last three communicate by a narrow stream with each other, as do those of Tossa, Soustons, and Vieux Bouque; several of them also communicate with the sea.

The chief rivers of the department are: the Adour, which waters the southern part; with its tributaries, the Midoüe, formed by the junction of the Midou and the Douze, the Gabas, the Luy de France, and the Gave de Pau, beside a great number of streams which flow into these. The only navigable river in the northern part of the department is the Adour, which is formed by the junction of two streams both rising within the department. The Adour enters the department on the east side, and passes by Aire and Grenade to St. Sever, where the navigation commences; it shortly after receives the Gabas on the left bank, and flows west to the junction on its right bank of the Midoüe, which is navigable from Mont de Marsan. It afterwards receives the Luy and the Gave from the Pyrénées on its left bank; both these streams are navigable for a short distance. The Gabas has a width of 100 feet, and has a depth of water of 10 feet, and navigable for a short distance. The river navigable both above and below the Midoüe has an extent of about 115 or 116 miles; of which the navigation of the Adour is 78 miles; that of the Midoüe about 27 miles; and that of the other two about 10 or 11 miles together. The capacity of the stream renders the navigation of the Adour very easy.

There are no navigable canals in the department. Several have been contemplated: one was projected as far back as 1751 by Dupré de St. Maur, then intendant of Gironde; it was to run from Bordeaux to the town of Bazas. A company was formed and a royal ordinance obtained in 1821, for executing one of these works. A third canal has been projected, and we believe something has been done towards its execution, from the Gélise, a stream belonging to the basin of the Garonne, to the Midoüe near Mont de Marsan. Though...
title has been done in these great works, we believe the projects have not been given up.

The high road from Paris by Bordeaux into Spain enters the Garonne and the Midiouze and the Adour, a little way north of Pons and Roquefort, Mont de Marsan, Taras, and Pontons, to St. Esprit, a suburb of Bayonne, where it crosses the Adour into the adjacent department of Basses Pyrénées. A road branches off from this at Roquefort, and runs south by Villeneuve de Marsan and Taras, and Pontons, and thence to the region of the Basses Pyrénées; and a road from St. Esprit runs east by Peyrehorade to the same city. There are other roads from Taras, by Grenade and Cahères, to Aire; and from Mont de Marsan, by Port-Sevr, to Ciboure, the department of Basses Pyrénées. The older and more direct road from Bordeaux to Bayonne, by the Grandes Landes, passes by detached posting-houses and miserable villages. It is indeed in many parts a scarcely a road, but rather a track across a wild sandy desert; and is now almost deserted. The aggregate length of the government roads is 287 miles, viz. 175 in repair, 27 out of repair, and 83 unfinished. The aggregate length of the departmental roads is 207 miles, of which more than half is unfinished. The bye-roads and paths are in number 1439, in aggregate length above 3000 miles.

The agricultural produce of the department is small; in the part south of the Adour, some maize and millet and rice are grown; and in the little western part of the department, the considerable vineyards, which produce tolerable wine; much fruit is grown, especially peaches, and also mulberry. North of the Adour the country consists of wide plains, on which numerous flocks of sheep are found. By the米地, the population of the wilds is scanty. The peasantries live in solitary cabins; the head of the family engages in the cultivation of the soil, where its sterility is diminished by nature, or counteracted by abundance of manure: the younger branches go, perhaps twenty miles from home, to make charcoal in the forests, or to attend their flocks. They traverse the deserts on long stilted carts; some in time to time intervene. The shepherd who watches his flock, mounted on these stilts, and resting on their slates, may be accompanied by the head of the family. From the time to time the soldiers or the inhabitants of the place, who may pass dry-footed through the morasses which from time to time intervene. The shepherds watch their flocks, mounted on these stilts, and resting on their slates, the tops of which are broad and rounded to afford them a seat. They employ the leisure which their occupation allows in keeping large wooden stockings. Some good horses are reared on the wastes; mules are bred; and some swine are kept. Poultry, bees, and silk-rooms are objects of attention in the department.

The department is divided into three arrondissements; as follows:

<table>
<thead>
<tr>
<th>Arrondissement</th>
<th>Situation</th>
<th>No. of Comm.</th>
<th>Area in sq. m.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mont de Marsan</td>
<td>N.</td>
<td>117</td>
<td>1985</td>
</tr>
<tr>
<td>St. Sever</td>
<td>S. E.</td>
<td>114</td>
<td>661</td>
</tr>
<tr>
<td>Dax</td>
<td>S. W.</td>
<td>109</td>
<td>895</td>
</tr>
</tbody>
</table>

339 3541 281,504 284,918

The number of cantons, or districts under a justice of the peace, is twenty-eight.

In the arrondissement of Mont de Marsan are the cantons of: Mont de Marsan, Villeneuve de Marsan, and Pontons; and of Taras, Roquefort, and St. Justin on the Donze, Villeneuve de Marsan on the Donze, Grenade, Cahères, and Adour, and Houtans on a stream flowing into the Midou. Mont de Marsan was built by Pierre, Viscount of Marsan, A.D. 1140. It is a handsome town at the confluence of the Donze and the Midou, approached by fine avenues of trees, and having broad straight streets, neat well-built houses, and a handsome bridge over the Midou. There is an office for the prefect of the department, and a justice court and prison of appropriate architecture. There are also a theatre and a number of good barracks. The population was 3774 in 1831, and 4052 in 1836. There are no manufactures, except a trifling one of salecloth; but the town is the general market for the supply of the department, and is the residence of many genteel families. During the war, it was one of the stations for the inland communication carried on by means of the Garonne and the Midiouze and the Adour, between Bordeaux and Bayonne. Mont de Marsan has a high school, a library of 10,000 or 12,000 volumes, an agricultural society and a military hospital. It has a post office and a weekly newspaper. The department has some lime-kilns and potteries; some trade is carried on in cattle, wool, honey, and wax. The population is above 1500. Villeneuve de Marsan has about as many inhabitants as Roquefort, which carry on considerable trade at their crossroads. Mont de Marsan is 90 miles north of Bordeaux; it is inhabited by the inhabitants of Larbret or Albrat, now a village, but formerly the capital of a county, the lords of which played an important part not only in the province, but in the kingdom itself. Aire is described elsewhere. [Aire.] Hagetmeau has many ten-tails. There are the ruins of a parallel site. Hagetmeau has a pleasant situation; and the upper town, the barony, or the hagetmeau, is by the Midiouze from the lower town, commands an extensive and extensive prospect. The population is in number, carry on considerable trade with Bayonne, by means of the Adour.

In the arrondissement of Dax are Dax (pop. of the commune in 1831, 4716, in 1836, 4740), and Saint Esprit (pop. of commune in 1831, 3895; of town, 4168), a suburb of Bayonne, on the Adour; Cap Breton and Vieux Boucau, on or near the coast; and Peyrehorade, Nastings, Sorde, and the other towns on the Gave. Dax and St. Esprit are not described elsewhere. [Dax.] Bayonne has a greater importance than now, as its extent and the number of ruined and deserted habitations testify. It is on the bank of a rivulet, the mouth of which once formed a haven. Vieux Boucau (i.e. Old Mouth) was formerly a place of consequence. The mouth of the Adour at Bayonne having been blocked up by sand-hills, the river forsook its channel, and flowing northward on the inner or land side of the town which the coast, found no outlet until it reached Vieux Boucau, where it again entered the sea, which gave some consequence to the place. The river pursued this course for nearly 140 years, or, according to some writers, above 200 years, until, in a.D. 1579, the Bayonne bridge was destroyed, and the sea entered the mouth and reopened. This restoration of the mouth, and the increase of the sea, has given great importance to the town of Vieux Boucau, which now contains scarcely thirty inhabited houses. Peyrehorade (pop. in 1831, 1740 town; 2453 whole commune) is on a hill on the right bank of the Gave de Pau; it has a considerable weekly market. There is a poor-house or hospital.

The manufactures of the department are not considerable. There are many ten-tails; some woollen cloths and coarse woollen stuffs, sail-cloth, and table-linen are manufactured. The exports of the department consist of hams, sausages, cork, deals, pitch, resin, &c. There is not a post along the coast; but that of Bayonne, at the mouth of the Adour, is close upon the border of the department.

The department is in the judicial division of the Comte Royale and the circuit of the Académie Universitaire de Pau. It forms the diocese of Aire, the bishop of which is a suffragan of the archbishop of Auch. The diocese was in existence as early as the beginning of the sixth century. The diocese was in the eleventh century, the bishopric of which is at Bordeaux. It sends three members to the Chamber of Deputies. It is a considerable below the average of France. Of the young male population enrolled in the census of 1829-9, only twenty-eight in every hundred could read and write, and the average of France was more than thirty-nine in every hundred.

LANDING-WAITER, an officer of the customs, whose duty consists in taking an accurate account of the number, weight, measure, or quality of the various descriptions of
LAN, 303

Armslands, landed from foreign countries or colonial pos-
sessions. Landing-waiters likewise attended to the shipment of all goods in respect of which bounties or drawbacks are granted. These officers are likewise called searchers.

LANGRANE. In the early history of Germany the Graf was an inferior judge, who was chosen by the people for his experience in law. The Senate of the Empire was called the Graf, or Grave (i.e. gray, or aged), or more probably from the old German Gerafo, receiver, afterwards judge, which sub-
sequently was changed to the present German title Graf, whereupon it became a hereditary title, and opened to family, whose members were no longer chosen by the people, but appointed, like the dukes, by the kings, and were judges of a district (called a Grafschaft, a division of which there still are some traces in Germany, as the Rhenegau), in which they exercised the right of revenue and justice, and had the administration of justice, the police, and the royal revenues. After the time of the Carolingian kings the following classes were distinguished: Polgravés (Phalgraf, Phalgrave, Phalgrave), who sat in judgment at the king's court, and examined whether a suit must be decided by the king himself; Margraves (properly Markgravés, Markgraf), from mark, a frontier or boundary, who were keepers of the borders (lords of the marches); Land-
grave, or Graven, employed by the emperor, or the sovereign, in the administration of justice, the police, and the royal revenues. Who were appointed to the Markgravés, they being governors, or graven, of the interior, who were under the dukes, and to whom the graves were subordinate. They very soon however made themselves independent of the sovereign. The Markgravés were the first to see of Canterbury, and it was the last of the eleventh century, and it was obtained in the next century by the Gravés of Hesse, in whose dominion the title is still borne (with the exception of the sovereigns of Hessia, who is the last of them). By the markgravés were called by the emperor the Hereditary Prince, and by each one of them their prescriptive heirs) by all the members and collateral branches of the reigning families.

LANGUARD, FORT. [Harwich.]

LANDRECY, or LANDRECE [Nord.]

LANDSCRONA is a town in Sweden, on the shores of the Sound, at nearly an equal distance between Cape Klü-
ner and the town of Malmö, and opposite the small island of Hven, 53° 51' n. lat. and 12° 8' E. long. It is situated in the province of Skonen, and in the land of Malmö, in a level and fertile country, in which much tobacco is grown. Its harbour is rather spacious and very safe. Being situated nearly opposite the capital of Denmark, the harbour as well as the town are well fortified. Its population amounted in 1826 to 3729, and is supposed to exceed at present 4000 souls. It carries on a considerable trade in corn, and has some manufactures of tobacco and starch, and also some sugar-houses, tanneries, and soap-houses, the produce of which is sent to some of the neighboring towns of Sweden. There is a good grammar-school in the town.

LANDSHUT, one of the prettiest and most agreeable towns in the kingdom of Bavaria, lies in 48° 30' N. lat. and 12° 13' E. long., and is situated on the delightful country on the banks of the Isar, over which there is a new bridge. The principal portion of the town consists of two long broad and straight streets, connected by a number of narrower ones. The houses are well built of brick, and many of them have gardens. The open parts are two market-places and the parade-square. The most remarkable buildings are the castle, the New Bav. (New Building), the house of the provincial assembly, an hos-
pital, and two parish churches, of which St. Martin's is the oldest, and St. Vitus, with his church and academy. This is the largest of its kind in Germany: this steeple, which is said to be 450 feet in height, commands a magnificent and most extensive view over almost the whole plain of Bavaria. On a mountain near the town is the ancient castle of Turin, which was formerly a strong fortress, and the residence of the dukes of Bavaria. On the declivity of this mountain is the botanical garden. A suburb is built on an island formed by the Isar. In the year 1800 the university of Ingolstadt was transferred to this part of Bavaria. This happiness was interrupted by the death of the wife of Count Blagden, who is the last of the Blagden family. The university is situated in a delightful country, on the banks of the Isar, the river which flows through the town of Turin. The buildings are large, and the college is extensive. LANGLEHORN, JOHN, was born at Kirkby Stephen, in Westmoreland, in 1733, and educated at the school of Appleby. Being too ingenuous to proceed to the university, he had recourse to private tuition, took orders, and in 1760 accepted himself as a tutor, and five years later married the daughter of the university of Cambridge. Having fallen in love with a daughter of the gentleman in whose family he lived, he offered her his hand, and on being refused quit his employment, and repaired to London, where he obtained a curacy, helped to pay the debts of his patron, and became afterwards a popular author. Dr. Hard appointed him assistant preacher of Lincoln's Inn Fields, and a short poem, called 'Genius and Vahour,' written in defence of the Scotch against the coarse abuse of Church and State, was published for him, from the university of Edinburgh in 1766, the degree of D.D. In the following year he renewed his suit, and was accepted. The living of Blagden in Somersetshire was purchased for him; but in the first year of his marriage it was interrupted by the death of his wife in childbirth. To solace his grief he undertook, with his brother, the new translation of Plutarch's Lives, published in 1771, by which he is best known. In accuracy this has doubled the accuracy of Plutarch's Lives, from the French of Anquetil, but it is much inferior in spirit and effect. Having married again, he lost his second wife in 1776, also in childbirth. This double dispa-
Langhorn wrote tales, poems, chiefly short, and sermons, which did not establish for him much reputation as a divine. He was foundry of a terminal, his music pleasing and harmonious but over ornamented, seldom rising above prettiness, and often spoiled by affectation. They have a place in Chalmers's 'British Poets.' For the list of Langhorn's works see Watt. Bibl. Brit. The poems published by his son in 1802, contain a Life of the author.

LANGELAND. [DENMARK: FUNEN.]

LANGRES, a town in France, capital of an arrondissement of the department of Haute Marne, 167 miles south-east of Paris. This town takes its name from the Lingones, one of the Celtic nations. Strabo gives to this nation the names Λίγγωνες and Αγγάνων: Ptolemy calls them Λίγγονες. They were among the tribes who, in the time of Julius Caesar, inhabited the Roman alliance, and they retained a considerable degree of liberty even under the emperors. Their chief town was called Andomatum; in the later period of the Roman empire it was called, after the name of the people, Langones; and thence by corruption Langres. It was a place of great importance under the Romans: many antiquities have been found; and there yet remain the ruins of two triumphal arches, one erected to Probus and one to Constantius Chlorus. Langres was much injured in the Revolution. The town was besieged, and its bishop, Lathi, was arrested. Flax, which overwhelmingly overpowered the Roman empire. It stands on an elevated site on the northern slope of the range of hills which unite the Cévennes with the Vosges, and near the sources of the Marne. It is surrounded by old fortifications. The church of the Marne is 11 miles long and 4 wide, and is adorned with fountains and promenades. The cathedral is remarkable for the beauty of its architecture, and for its antiquity; some part of it is thought to have been a heathen temple. There are a town-hall and a theatre. The population of Langres in 1831 was 5960 for the town, or 7460 for the whole commune; in 1836 it was 7677 for the commune. The chief manufactures are cutlery, especially scissors, leather, and earthenware; there are many breweries, and it deals in flax, hemp, wool, &c. There are eight yearly fairs. There are two seminaries for the priesthood, a high-school, a drawing-school, and lectures on mechanics and geometry applied to the arts. The public library consists of 30,000 volumes. There are a foundling and two other hospitals.

This city is commonly reputed to be the birth-place of Julius Sabinus, who assumed the purple against Vespassian, and was concealed for nine years after his defeat by the forces of the latter; his wife Regina (Tacit., Hist., iv. 67.) It was also the birth-place of Diderot.

LANGTOFT, PETER, an English chronicler who lived at the end of the thirteenth and beginning of the fourteenth century, and composed the work of St. Austin at Bridlington in Yorkshire. He translated from the Latin into French verse Herbert Boshamn's (or Boscan's) 'Life of Thomas à Becket,' and compiled, likewise in French verse, a 'Chronicle of England,' manuscripts of which are preserved in the Cottonian Collection, Julius A.V., in the old Royal Library at the British Museum, and among the Arundel manuscripts in the library of Herals's College. The 'Chronicle' begins with the fable of the Trojans, and comes down to the life of the reign of Edward I. Langtoft is believed to have died early in the reign of Edward II. Robert de Brune gave an English metrical version of Langtoft, which was edited at Oxford, in 2 vols. 12mo., by Hearne, in 1725. (Hearne's Pref. to Peter Langtoft, Cantor, Bibl. Brit. Hist.; Chalmers, Biog. Dict., xix., p. 526.)

LANGTON, STEPHEN, was a native of England, having been born in the earlier half of the twelfth century, according to one account in Lincolnshire, according to another in Devonshire. After finally obtaining a degree at the University of Paris, he taught with applause in that seminary, and gradually rose to the office of its chancellor. He held this rank, and had also obtained some preferment in the court of the Holy See, when he visited Rome, about the year 1206, on the invitation of Pope Innocent III. He immediately honoured him with the purple by the title of Cardinal of St. Crysogonus, and soon after recommended him to be elected to the Archdiocese of Canterbury, then considered as vacant by the rejection of the claims both of Reginald the sub-prior of Christ-church by whom his brother monks had in the first instance appointed to succeed the last archbishop Hubert, and of John de Gray, bishop of Norwich, whom they had afterwards substituted in defence of the pope's jurisdiction, but who was finally elected by a few of the monks who were then at Rome, and was consecrated by Innocent at Viterbo, 17th June, 1207. John's determined resistance to this nomination gave rise to the contest between him and his rival, which has been such an important subject. [Innocent III; John, King of England.] The consequence, in so far as Langton was concerned, was, that he was kept out of his see for about six years; till at last, after the negotiation concluded by the future Pandulf of John an English megrim, John de Gray, in July, 1213, and the latter was fully acknowledged as archbishop. In the close union however that now followed between John and Innocent, Langton, finding his own interests and those of the clergy in general, in so far as they were opposed to those of the king, deserted by the pope, was naturally driven into confederacy with the insurgent barons, among whom the eminence of his station and the ascendancy of his talents soon acquired him a high influence, and in whose counsels he took a prominent part. It was he who, at the meeting of the heads of the revolt at London, 23rd August, 1213, suggested the demand for a renewal of the Charter of Henry I. To the cause of the national liberties, which he had thus joined, he adhered with unfaltering zeal, and his name is perpetuated in course by which he so greatly offended the pope, that on his refusal to excommunicate the opponents of the royal authority, after John's perfidious attempt to release himself from his engagements at Runnymede, he was in the latter part of 1215, deposed, dispossessed of his benefices, and deprived of the exercise of his archiepiscopal functions. After this the name of Cardinal Langton is little mentioned by the historians; but he continued to preside over the church till his death, which took place at London, 23rd July, 1228, under the name of John de Gray, and is considered as the founder of the English school of cathedral learning, and is the author of various theological tracts, some of which have been printed, and lists of all of which are known are given by Cave and Tanner. It has been shown in a note to the last edition of Warton's 'History of Eng.' that a part of this work, the first three books, is attributed to him, while Warton himself, in the Archæologia, has been shown to have been the author of a drama in the French language, which had been assigned to him by M. de la Rue (in the Archæologia, vol. xiv.), on no better grounds that the manuscript having been found bound up with one of the cardinal's sermons.

LANGUAGE. The purpose of the following remarks is to show generally what language is, and to point out the principles according to which particular languages should be studied. The subject is not so obvious as it may appear when compared with more easily comprehensible subjects, such as simply existing phenomena, without any reference to the changes which they have undergone. The history of such changes is a part of the history of man, and is necessary for a full and complete understanding of any given language. The study of LANGUAGE, as it is commonly given in schools, is, in its essentials as language one and the same phenomenon. The origin of language, like that of man himself, is unknown, beyond the brief statement given in the book of Genesis. That man has the faculty of speech, is only another mode of saying that by his organization he is qualified to produce all the sounds which compose spoken language. Whether man, being originally endowed with this power, gradually formed language, stimulated in his instincts for social life, and guided by his intellect, to evolve the powers; or whether language, and not the bare faculty of speech, was conferred on him by the same power when called him into being, are questions that cannot be answered, and for our present inquiry they are unimportant. If any conclusion can be drawn from the narrative of the creation in the sacred Scriptures, it is in favour of the hypothesis that language was given to man; a conclusion which even those who deny the truth of the Mosaic account must admit. The whole subject is clouded by the difficulty that has yet been proposed. The suggestion that language was gradually formed by the efforts of man may be put side by side with the notion that man was originally a solitary savage animal, that society gradually formed, the first promiscuous marriages, the first political power, and that this barbarism was gradually exchanged for civiliza. If this latter hypothesis is justly rejected as not only unsupported by any evidence, but as contrary to the recorded experience of mankind, the former hypothesis,
that of man constructing language," if it does not necessarily fail with it, must at least be greatly shaken.

It is no objection to the opinion, not here expressed, but only intimated, that the history of many languages shows a gradual progress from rude beginnings to a more perfect state, and that so far back as to the most cultivated tongues, they bear the impress of a rude state than that exhibited at any subsequent stage in their development, and that the social state of which they are the index and the expression, is probably there in the making. Every language allows how poor, how miserable, and how scant, that which we can affirm is that it is either unconnected with every other existing language, or unconnected with some language no longer known.

A definition, or rather a description, of what language is, may be required at the outset of these remarks: that which we shall give does not aim at such a degree of accuracy as to be above criticism; it is merely such a description as will show what it is that we are speaking about; and perhaps could be so great impropriety in leaving it undescribed, and allowing each person to collect his definition from what is here said.

Language consists of vocal sounds[Larynx], which convey to the hearer the same conceptions as those which prompt the speaker. They should be tolerably general, i.e., not a particular part of language which produce in the hearer the counterpart of that mental state of which these sounds are the material and sensible signs. But language, as it exists, presents great varieties, and though all languages have many in common, to a considerable number of persons speaking in a community, the exercise of them constitutes and makes a language. Whether the vocal sounds employed are many or few, or whether the language is rude or cultivated, makes no difference for the purposes of this general description.

A language then must be viewed as the totality of the vocal sounds by which the members of any given society communicate to one another their inward conceptions. As action or motion of the body and all its parts, is but a certain number of movements, and not a word or words, and these taken in the mind, according to its laws, views things and the relations of things. Language therefore, in addition to its power of expressing what can be expressed by other corporeal signs, has a peculiar power of conveying from one person to another notions, as conceived by the mind, which have no actual existence, or which at least can only be mentally conceived to exist. The degree in which language is capable of doing this depends on the mental cultivation which the people using it have had: for without such cultivation and education, all the sounds, and unless preceded by, or accompanied by, such cultivation, such part of language cannot exist. The language of many nations may be so poor in sounds and the combinations of these sounds, that it cannot convey a sound to another person than can be conveyed by other corporeal signs; or a very few sounds and combinations of sounds, added by the other natural signs, may be sufficient for all the purposes of social existence. But even in the poorest languages many names of things, that is, general or universal terms, are required to express the meaning of a speaker when the objects referred to are not present, and in such language much distinction must be made by a considera-

* The meaning of Language is derived from Compact."—Harriss's Herew., 234.

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The mode in which the sounds in any given language are represented must not be considered as necessarily indicating anything peculiar in the language itself.

It is possible that the characteristic of any language now existing must have been permanently and to a considerable degree affected by the circumstance of the state or condition in which it was when it first reduced to writing. Whether we suppose all words to have been originally orional or not, it is difficult to conceive of words as first used otherwise than as monosyllabic sounds; at least, so far back as we can trace any known language, such seems to be the result to which we approximate. By this it is not meant to say that a syllable is one simple sound, but that the monosyllabic sounds here meant are such as in their integrity expressed one notion distinctly and one only, that every part of the sound was a necessary part of the meaning, and that no part of the sound was derived from the union of another sound with it. Thus the whole of a considerable degree of fixity, this processory, every one of which had its distinct meaning in itself.* But spoken language is in its nature favourable to the agglutination of sounds, and particularly of those which come into juxtaposition in such a manner as to result without the loss of the meaning of what is said. Thus, to adopt for the purpose of convenience the names now used, the verb and its pronom, the word signifying a place and the word expressing some relation to that place, and other similarly situetd and respectively in combinations formed, thast would arise the phenomenon, which we observe in most languages, of words reducible to various elements, some of which in their simplest form are notional terms, and some which, taken by themselves, convey no meaning at all, but by being united with the notional term modify and qualify it.

As this agglutination owes its existence mainly, as we think, to the use of spoken language, we should expect to find that unwritten languages present these phenomena of agglutination in a still sharper degree of acuteness, as written languages. And such is the fact. Some of the Indian languages of North America, for instance, are exceedingly rich in all such words as are formed by this process of agglutination. When a language has by writing obtained a considerable degree of fixity, this processory has stopped, and all that then takes place in the way of producing new forms of words is by compounding actually existing words, which are in fact and appear as unions of distinct parts, so that each part of the word retains its distinctive character.

If the language of a nation were committed to writing in a very early state of its progress, it seems probable that the simple elementary forms would be kept much more distinct than those which have not been committed to writing except in a more mature form. Thus the mass of the words would be of the monosyllabic class, and the adoption of distinct symbols for the representation of each sound would seem natural and almost necessary. If must have been in the attempt to represent in writing some of the languages which had been cultivated by longer use and improved by social and intellectual development that the discovery of the mode of representing all the sounds of a language originated.

It only remains to observe that some languages, as the Greek and the Latin, and, to a considerable extent, the German, express many relations between the various notions contained in any set of words, by means of certain variations in the forms of the words themselves, while variations mainly occur in the terminations of such words. Thus the whole meaning intended to be expressed by the words 'Homo bovem ferti,' may be indicated by any arrangement of these three words. It is true that in the Latin and Greek, and indeed in all languages in which the terminations of words are capable of expressing relations, it is by no means unimportant in what order we place the words, notwithstanding the general meaning can be conveyed by almost any order. The particular and special meaning can only be conveyed by adopting that arrangement which shall express the order in which the several ideas, as suited to the particular occasion, rise up in the mind of the speaker.

Some languages, of which the English in its present form is a striking example, have little or no power of expressing; and accordingly they depend on a set of terms, and relations by another set of words. Such languages are necessarily more limited as to the power of varying the order of their words than languages of the class here considered. The English language, now brought pretty nearly into that form in which we may conceive language to have originally existed; with this exception, that language as originally existing, so far as we are capable of conceiving it in that form, consisted altogether of such notions by one set of terms, and relations by another set of words. Such languages are necessarily more limited as to the power of varying the order of their words than languages of the class here considered.
the same mode of grammatical inflexion, must originally have been one and the same language, or derived from some common language. We cannot well suppose that languages which resemble one another in these respects have been derived from any one of those now existing in which though accidencies are sometimes noted, we cannot imagine the Latin to be descended from the Greek, how should we account for the similarity of the Latin and Greek in the Sanskrit and Teutonic tongues? The little intercourse that subsisted between the inhabitants of India and the Greeks took place by traders, and the contact could have derived its language from the other; and indeed the resemblance is so striking, and descends to such minute particulars, that nothing but a common origin is sufficient to account for their similarity. The error we have been guilty of in discovering the root without any termination affixed, except the letters to mark inflection, as uti-s, fer-re, ed-eru, bib-eru, cad-eru, &c.; and even when terminations are added to the root to form adjectives, verbs, nouns, &c., there is seldom any root that is not the same, or at least cognate in the regularity of structure of the Latin, Greek, and cognate tongues. Thus, if it were necessary to discover the root of uti-s, it would only be necessary, after separating the o of the nominative case, to compare it with the Latin words as fac-it-s, fat-iti-s, sub-it-s, sin-it-s, ag-it-s, dor-it-s, &c.; and it would be evident from analogy that the root must be ut, even if we did not know the existence of uti and as-s. On the same principles we should have no hesitation in taking the root of ed-eru to be equu-m, as we have done in the root of sig-it-s, with the Latin sig-mu-n, sig-mu-n; that mad is the root of mad-id-s, by comparing it with vit-ida-s, rap-ida-s, tim-id-s, tab-id-s, &c.; that frag is the root of frag-men, by comparing it with mu-men, kn-men, gra-men, sen-men, leg-men, &c.; that mar is the root of man-u-s, by comparing it with vic-in-us, taur-in-us, sup-in-us; even if we had no other proof of such being the case. But since the same root frequently occurs in several words in the same language in such cases as these, we may compare the Latin words with one another, in order to see what letters are common to all these words, and to separate those which are not found in each instance, in order to ascertain the root. Thus equatu-s comes from the verb equa-re (crude form, equa); equa is derived from equit or equat, a 'horseman,' and equit from the root equ, which we have in equus.

The meaning of the root is not only affected by the terminations which are affixed to it, but also by words prefixed to it. We are familiar with this in our own language, as in the words un-able, un-foresee, be-calm, be-com, &c. The meaning of un-able, un-foresee, &c., is the same in Latin, in respect to the former parts of the words, but the suffixes are different, and these are fixed; in con-due-duc, the root is with con prefixed. The root of the following Latin words will, after the preceding remarks, be easily recognised:—inter-rect-ion-em; con-min-us; vir-tu-te; mag-tu-tinuis; in-opia; vec-tus; trans-mar-inu-m; gen-tius; pro-cer-ed; leg-a-tus; con-tig-it; fru(mentu)-m; spec-e-tu-s; pro-hi-et-s; co-gra-so; con-fec-to; occu-lat-stit; con-fin-ent-es; imper(i)-mentu-s; exped-i-to-s; leg-ion-onu; re-liqu-it; re-in-tat-ibus.

The advantage of analyzing words in this manner is not confined to the comparison of roots in different languages; it will be found of great use in explaining the forms of a language, without reference to any other, and will prove that the real roots of language are those which are unaltered, and will also greatly abbreviate the labour of learning a language; since, after the original signification of the root has been acquired, the meaning of almost all the words which contain the same root can generally be ascertained, even though the learner may not have seen the root before. A few examples from the Latin language will show what a regularity words are formed from the same root: thus from the root or, 'plough,' we have or-o (ar-a-s) or-tu-s, ar-a-tio.
ar a tor, ar a tru m; from the root ag we have ac tu s, ac tio, ac tor, ag men, ag il li s, ac turn s; from the root fac we have fac m, fac tu s, fac tor, fac il li s, fac turu s, medi fac i u m; from ac, signifying a point we have ac u s, ac i e s, ac u tu s, ac i du s, ac etu m, ac ri s; from pac (to fasten, to arrange, to fit) we have pac s, pas n g o, pac tu m, pac tio, pac i e or, pac o, pac a tor, pac a bil i s, com pac g o a. In the same manner from the root spe or, speci fying, to see we have spec i o (used by Varro), spec i e s, spec i ali s, spec i os u s, spec i men, spec to, spec ta tu s, spec ta ti a, spec ta tor, spec ta tric s, spec ta bil i s, spec ta cul u m, spec ta men, spec i o, spec tu r, spec tu m, spec ula, spec ula ul or (spec ula or), spec ula tric s, spec ula bil i s, spec ula ul u m, spec ula ri s, con spec i o, con spec tu s; con spec i or (con spec i or), con spec tu i s; in spec i o, in spec i o, in spec i tu i s, in spec ta (in spec ta o), re spec tu s, re spec i o (re spec i o); and many more.

In the above examination we have confined our attention to one language; but the same remarks would apply with equal force to the formation of the kindred languages. It could easily be shown by numerous examples from the Greek and Sanskrit that the different tenses of verbs and cases of nouns in these languages can be stripped of their inflection letters, and thus reduced to their crude forms; and that these crude forms, if they contain any terminations, can easily be reduced to their roots, as in the Latin language. It might also be shown that the vast majority of words in the cognate tongues are built up from roots by means of affixes or suffixes, with the same regularity of structure as we find in the Latin language.

The necessity of an acquaintance with the regular transforma-
formations of letters that occur between cognate languages has been already remarked. In fact, it is impossible to compare one language with another without a knowledge of the principal changes of the letters. Thus the German herz might be supposed to have little in common with the Latin cor, cordis (cru e form, cord), except the meaning; but the identity of the two words is established at once when it is known that c in Latin is almost invariably ś in the Teutonic languages, as coll um, hal s; cel are, hehl en, cut is, haut; corn u s, hora; can nib a s, hant (he mp); caput, hap ti (head), &c.; and that the Latin d frequently corre-
sponds to the Teutonic z, as den t (dent) zahn; duc re, zie h en; de e m, zeh en, or zeh n, &c.

The Sanskrit word for ten, dasa, and the German ze h en, or zeh n, have not one letter in common; but no doubt can be entertained respecting their identity when it is shown that the d in Sanskrit constantly corresponds to z in German, and that the palatal s of the Sanskrit corre-
sponds to the German ŋ. The following table, taken from Pott's 'Etiologische Forschungen' (pp. 82, 83), contains a list of the principal transformations of letters in some of the Indo-German languages. The reader who desires further information on this subject can consult the articles under the letters of the alphabet in this work, in which will be found examples of many of the changes in the following table, and also a list of the transformations that occur be-

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That languages spoken by different nations, and at pre-

sent mutually unintelligible to the people of each nation, may nevertheless be so closely allied to each other in their grammatical forms, and in the words used to express the most common objects, actions, and relations, as to prove that they are kindred languages, and proceed from one common origin, will scarcely be denied by any one who has studied some of the principal languages which belong either to the Indo-Germanic or Semitic branches. It is proposed in the following remarks to show the affinity of languages by examples drawn from Indo-Germanic tongues: partly be-
cause some of these languages are familiar to most of us, and partly because they are more in number and have been studied with greater accuracy than the Semitic tongues.

The family of Indo-German languages may be divided into six branches, two of which belong to Asia, and four
to Europe, and through European colonies to other parts of the world.*

1. The Indian branch, comprising the Sanskrit and its derivative dialects.
2. The Middle-Persian, or Arian branch; at the head of which stands the Zend. The other antient languages of the country, the Pehlevi and the Dari, and also the modern Persian, belong to this division.
3. The Teutonic branch, with the Teutonic at its head, and comprising the different German dialects, the Anglo-Saxon, the Iceland, the Swedish, Danish, &c.
4. The Graeco-Latin branch, comprising the two antient classical languages.
5. The Slavonic branch may be divided into three divisions; the first comprises the Lithuanian, with the antient Prussian and Lettic; at the head of the second stands the Russian; the third comprehends the Polish and Bohemian, and the languages of the Swallows in Hungary, and of the words and Sorpa in Lusatia and Saxony.
6. The Celtic branch may be divided into two divisions: the first comprising the Welsh, Cornish, and Armorican; the second, the Irish or Erse, the Gaelic or Highland volpe, and the Manks.

The connection of these languages with the other Indo-Germanic languages has been fixed by many etymologists; but the grammatical structure of the Welsh and Erse resembles that of the acknowledged Indo-Germanic languages in so many particulars, that we may safely pronounce them to belong to the same family.

It is now universally admitted by those who have written on the comparative study of languages, that the affinity of languages should above all things be established by comparison of their mode of forming and deriving words, and of the system of their inflections. * Comparisons of declined words, remarks Mr. Pott, 'frequently yield but a single point of coincidence, which is always liable to the suspicion of having been transferred from one language to the other; while the actual coincidences in the expression of some grammatical relation, which is not so easily implanted, and in the roots as found by careful grammatical analysis, often present a hundred or thousand points of proximity. Even languages of the same family sometmés diverge widely, owing to the diversity of pronunciation which gradually estranges them as dialects no longer intelligible to each other. But this diversity of pronunciation, although from a higher point of view it must be considered accidental, stands under the control of certain natural laws, especially that of the physiological affinity of sounds; and these laws we ought to discover and establish. Kindred Languages are those which, either in consequence of the internal development and the geographical spreading of a language, or the effect of external influences, have lost their original identity, and have become varied and modified; while languages not akin are those which from the outset have originated under principles of formation altogether different, and have grown up conformably to these principles. If languages not akin occur in any particulars, such occurrences must be accounted for either through the intercourse of the nations to whom they belong (even if that intercourse cannot be traced in history), or by the general sameness of the human mind and senses, or of the object designated; or finally, by assuming an accidental coincidence, which is not altogether to be excluded. No small proportion of the words collected by Klaproth, in his "Asia Polyglotta," in support of his theory of an antediluvian conformity of languages, show an external similarity of sound; but this similarity vanishes, as soon as we come critically to investigate these words, and to disentangle them into their component elements, conformably to the rules of their respective languages.*

In conformity with these remarks, it is proposed first to establish the affinity of the Indo-Germanic languages by a comparison of their numerals and grammatical forms, and afterwards by a copyist list of words common to all or most of these languages.

The following examples have been chiefly taken from Bopp's 'Vergleichende Grammatik des Sanskrit, Zend, Griechischen, Lateinischen, Lateinischen, Altäuslischen, Erisches, Gotische, and Deutschen; Pott's 'Etymologische Forschungen auf dem Gebiete der Indo-Germanischen Sprachen; Priehard's 'Eastern Origin of the Celtic Nations, proved by a comparison of their dialects with the Sanskrit, Greek, Latin, and Teutonic languages;' and from Grimm's great work on Teutonic Grammar.

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* This classification is taken from an excellent review of Pott's 'Etymologische Forschungen,' by the late Dr. Rosen, in No. 18 of the 'Journal of Education.'
### Declension of the Demonstrative Pronoun.

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### Declension of the First Personal Pronoun.

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### Nominative Singular of Nouns

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| (tanu)   | tanu-s | *Noun* | *Noun* | *Noun* | *Noun* |
| (madha)  | madha- | *Noun* | *Noun* | *Noun* | *Noun* |
| (gū)     | gū-s   | *Noun* | *Noun* | *Noun* | *Noun* |
| (nun)    | nun-s  | *Noun* | *Noun* | *Noun* | *Noun* |
| (vēch)   | vēch-s | *Noun* | *Noun* | *Noun* | *Noun* |
| (vāh)    | vāh-s  | *Noun* | *Noun* | *Noun* | *Noun* |
| (bhrata) | bhrata- | *Noun* | *Noun* | *Noun* | *Noun* |
| (dātā)   | dātā- | *Noun* | *Noun* | *Noun* | *Noun* |
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### Accusative Singular of Nouns

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| (sva)    | sva    | *Noun* | *Noun* | *Noun* | *Noun* |
| (tanu)   | tanu-s | *Noun* | *Noun* | *Noun* | *Noun* |
| (madha)  | madha- | *Noun* | *Noun* | *Noun* | *Noun* |
| (gū)     | gū-s   | *Noun* | *Noun* | *Noun* | *Noun* |
| (nun)    | nun-s  | *Noun* | *Noun* | *Noun* | *Noun* |
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### Nominative Plural of Nouns

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| (sva)    | sva    | *Noun* | *Noun* | *Noun* | *Noun* |
| (tanu)   | tanu-s | *Noun* | *Noun* | *Noun* | *Noun* |
| (madha)  | madha- | *Noun* | *Noun* | *Noun* | *Noun* |
| (gū)     | gū-s   | *Noun* | *Noun* | *Noun* | *Noun* |
| (nun)    | nun-s  | *Noun* | *Noun* | *Noun* | *Noun* |
| (vēch)   | vēch-s | *Noun* | *Noun* | *Noun* | *Noun* |
| (vāh)    | vāh-s  | *Noun* | *Noun* | *Noun* | *Noun* |
| (bhrata) | bhrata- | *Noun* | *Noun* | *Noun* | *Noun* |
| (dātā)   | dātā- | *Noun* | *Noun* | *Noun* | *Noun* |
| (vasa)   | vasa-  | *Noun* | *Noun* | *Noun* | *Noun* |

* The apostrophe indicates that a letter has been dropped.
### Present Tense of the Verb 'To Place' (Saud).—Crude Form, Sih or Stoa.

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<td>stow-mi</td>
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<td>tæ-ye-thi</td>
<td>si-stæ</td>
<td>stææ</td>
<td>stow-istsæ</td>
<td>(Same as Sing.)</td>
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<td>(Same as Sing.)</td>
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### Present Tense of the Verb 'To Give.'—Crude Form, Da. 

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<td>da-dæ-si</td>
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### Present Tense of the Verb 'To Be.'—Crude Form, As or Es.

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<td>es-ti</td>
<td>jes-ti</td>
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<td>es-tæ</td>
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<td>jes-antil</td>
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### Remarks on the preceding Tables.

**Numerals.**—The numerals which are subject to inflection are given in their crude forms; and in the Latin and Greek lists several ancient forms are inserted, which show more clearly the connexion of the numerals of these languages with those of the cognate tongues. The only numeral which appears to have more than one root to express the same number is "one." All the languages, with the exception of the Sanskrit, Zend, and Persian, express the notion of unity by the same word, *en*, *en*, *es*, *es*, *ec*, etc., with a sound before it in some of the languages, as the Lithuanian and English, and probably also in the Latin; in the...
The formula is ungrammatical; it was intended to be a supplement to a previous sentence. The correct form should be "The original form of the formula is preserved in the Erse..."

P. C. No. 827.
The third conjugation, for example, is characterized by the reduplication of the first letter of the verb with a short vowel, of which an instance has been given above in the present tense of the verb 'to give.' The characteristic of the ninth conjugation is nā, or ni, inserted between the crude form and the personal terminations of the verb. The Latin, Greek, and Slavonic languages form the present tenses of many verbs in a similar manner.

The past-imperfect and aorist tenses of the Greek verb are formed in a manner very similar to the preterite tenses of the Sanskrit. The Sanskrit preterite, which corresponds to the past-imperfect of the Greek verb, is formed by prefixing the augment a, and shortening the personal terminations.

The other Sanskrit preterite, which corresponds to the two aorists of the Greek verb, has, according to Bopp's division, seven forms; of which the first agree more or less with the Greek first aorist, the fifth and sixth with the Greek second aorist, and the seventh, which, besides the augment, has also a reduplication of the first syllable, with the Greek past perfect. The four first forms always add the letter in order to form the preterite; thus from the crude form kášp is derived a preterite a-káship-sam, corresponding to the Greek l-av-r(e). The fifth and sixth forms have the same terminations as the past-imperfect tense, and differ from that tense nearly in the same manner as the second aorist in Greek differs from the Greek imperfect; thus from the crude form ká is derived a preterite a-ká, corresponding to the Greek l-av-r(e).

The perfect tense seems originally to have been formed on the same principles in the Sanskrit, Latin, Greek, and Teutonic languages; namely, by a complete or partial reduplication of the crude form of the verb. Thus in Sanskrit, from bhrí is formed the perfect ba-bhrá-a; from tri, the perf. tu-tár-a; from tarp, the perf. tu-tápa, and from kášp, the perf. chí-káshp-a. In the same manner, from the crude form ad, the Sanskrit forms a past-imperfect a-dd, and a preterite a-dd, analogous to the Greek i-dé-í, and i-dé-a,.

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**Parts of the Body, etc.**

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<td><em>camos</em></td>
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**Objects of Nature and Art.**

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<td>Sky, Cloud</td>
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<td><em>nabha</em></td>
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Words denoting Relationship, etc.—continued.
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<th>Celtic</th>
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<td>him</td>
<td>zima</td>
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<td>Lett. snow</td>
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<td>νίνα</td>
<td>vino</td>
<td>vino</td>
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<td>Er. fin</td>
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<td>dower</td>
<td>dower</td>
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<td>Er. doras</td>
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<td>G. rad</td>
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<td>Gallic, rhesa, etc.</td>
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**Adjectives.**

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<th>महात</th>
<th>magno</th>
<th>magus</th>
<th>G. milks</th>
<th>Er. meall</th>
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<tbody>
<tr>
<td></td>
<td>(great)</td>
<td></td>
<td>(to be able)</td>
<td></td>
<td>O. H. G. mibil</td>
<td>O. Engl. muchel</td>
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<tr>
<td>Broad</td>
<td>prithu</td>
<td>πρίθω</td>
<td>lato</td>
<td></td>
<td>G. braut and Platt</td>
<td>Engl. broad &amp; flat</td>
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<td>G. dênnu</td>
<td>W. denau</td>
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<td>Then</td>
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<td>tanui</td>
<td>tanin</td>
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<td></td>
<td>From the verbal root tan. (See below.)</td>
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<td>yuv-an</td>
<td>युवान</td>
<td>juvanli</td>
<td>jannia</td>
<td>G. juug</td>
<td>W. jau</td>
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<td>G. neu</td>
<td>W. newyd</td>
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<td>meada s</td>
<td>G. midia</td>
<td>Er. meadow</td>
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<td></td>
<td>(between)</td>
<td>O. H. G. midia s</td>
<td>Engl. midia</td>
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<td>G. roth</td>
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<td>Engl. ruddy</td>
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<td>G. bêde</td>
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</table>

**Verbal Roots.**

| To Generate | jan    | जन (N. जनस)  | gen          | Lith. genum | G. kin | W. geni |
| To Die       | mri    | म्री            | mor           | Lith. mirt  | G. maurtur | Er. marth |
|              | mera   | मरे           | mor           | Lith. mirt  | G. mor| W. marw |
|              | (death)|               | mirt          |            |         | (die) |
|              | Z. mar |               |               |            |         | (dead) |
|              | P. murd-en | See Journal of Education, No. 5, P. 100 | | | | |
| To Live      | jiv    | जी (ब्राह्मण) | vīr           | jīvr, jīva | G. quīva | Er. beo |
|              | (Z. jī, or jīva) |         | (life)        |            |          | W. byrm, or ryv |
| To Know      | jñah   | जनात          | gno, co-gno-ac, (g)no-sec | G. kann | G. kann | W. gwn |
|              | (know) | (to be able)  | gno           |            |          |          |
| To Know      | vid*   | विद          | vid           |            | G. vid | W. gwadh and wydh (knowledge) |
|              | Z. vid |               | vid           |            | vīt-en-wit, vīt-um, vīt-vum (knowledge) | Er. fis, fo (knowledge) |
| To Hear      | śrugh | स्रुग           | clu           | G. hliuma (ear) |          | W. clwyw (hearing) |
|              |         |               | ala           |            |            | Er. clau (ear) |
| To See       | drīsa  | द्रीसा          | Lith. dairaus | Lith. dairaus | (look above) | Cr. dars (ear) |
| To Lie       | lih (b gutural) | लिह (मुद्रा) | k(n)g          |            | G. laigm-an | Er. lightin |

* This verb in Sanskrit, Greek, and Gothic has no Perfect Tense, but uses the Perfect in the sense of the Present; and in the inflection of the tense the short vowel of the root is in each language changed into a long vowel in the Singular Number. In the Greek θ, the a represents the e which appears in θ, etc.
A brief examination of the family of languages, usually known by the name of Semitic, will tend to confirm the observations that have already been made respecting the affinity of languages. It will be seen that the various dialects of this family are related closely to each other as the different branches of the Indo-Germanic race; and that they differ widely from the latter, both in their grammatical structure and in the majority of their roots.

The Semitic languages have derived their name from the real or supposed descent of the people who speak these languages from Shem, the son of Noah. They may be divided into three branches—

1. The **Aramesian**, spoken in Syria, Mesopotamia, and Babylonia, may be subdivided into two branches; the Babylonian, or East Aramesian (sometimes, but erroneously, called Chaldee), and the Syriac, or West Aramesian.

II. The **Hebrew**, spoken in Palestine, and probably with little variation in Phœnicia and the Phœnician colonies, as Carthage, &c.

III. The **Arabic**, to which the Ethiopic is very closely allied, is at present spoken in many countries, but was originally confined to the peninsula of Arabia and Ethiopia.

In order to save room, the examples in the following lists have been taken from the Hebrew and Arabic languages alone, since they are the two most important branches of the Semitic family of languages.

In general the remarks already made on the changes of letters in the Indo-Germanic languages will hold good in

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>to be.</td>
<td>bhū</td>
<td>φω</td>
<td>fa</td>
<td>bu</td>
<td>Br. bu mi</td>
<td>W. bu</td>
</tr>
<tr>
<td>to be.</td>
<td>na</td>
<td>es</td>
<td>jes</td>
<td>Eng. is</td>
<td>Br. iš</td>
<td>W. ys</td>
</tr>
<tr>
<td>to eat.</td>
<td>pa</td>
<td>id</td>
<td>ed</td>
<td>O. Pr. is</td>
<td>O. H. G. be-an</td>
<td>W. yen</td>
</tr>
<tr>
<td>to drink</td>
<td>pl.</td>
<td>οὐ or ω</td>
<td>po</td>
<td>pio</td>
<td>O. H. G. pi-pin-an</td>
<td></td>
</tr>
<tr>
<td>to call</td>
<td>yach</td>
<td>βαχ or βακ</td>
<td>βαχ-και</td>
<td>B.</td>
<td>O. H. G. pi-pin-an</td>
<td></td>
</tr>
<tr>
<td>to heat</td>
<td>tap</td>
<td>ταπ</td>
<td>tep</td>
<td>tep-leiu</td>
<td>O. H. G. pi-pin-an</td>
<td></td>
</tr>
<tr>
<td>to fear</td>
<td>bhī</td>
<td>φίδι</td>
<td>bo</td>
<td>Lith. and Lett. bi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>to stick</td>
<td>stri</td>
<td>στρι</td>
<td>acc.</td>
<td>acc.</td>
<td>O. H. G. pi-pin-an</td>
<td></td>
</tr>
<tr>
<td>to mix</td>
<td>miar</td>
<td>μιρα</td>
<td>mix</td>
<td>Lith. mis</td>
<td>G. misch-en</td>
<td>W. mysg</td>
</tr>
<tr>
<td>to stretch</td>
<td>tan</td>
<td>ταν</td>
<td>ten</td>
<td>G. dehn-en</td>
<td>raen</td>
<td></td>
</tr>
</tbody>
</table>

Verbal Roots—continued.
the Semitic family. One example of this deserves a distinct mention. In Hebrew p ב and ב/ב are only distinguished by the dot in the former; in Arabic there is no p, and the Hebrew p is always expressed by f; as, to do, Heb. pa'at, Ar. fu'āda.

The nouns and verbs given below have been taken at random: they might easily be multiplied to almost any extent; so numerous are the roots which are common to the two languages. Those words only have been taken which are likely to be primitive words in any language:

### Numerals.

<table>
<thead>
<tr>
<th>Hebrew</th>
<th>Arabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>eḥād</td>
</tr>
<tr>
<td>Two</td>
<td>šēnām</td>
</tr>
<tr>
<td>Three</td>
<td>šēmšēm</td>
</tr>
<tr>
<td>Four</td>
<td>šābā'</td>
</tr>
<tr>
<td>Five</td>
<td>šāmītah</td>
</tr>
<tr>
<td>Six</td>
<td>šātah</td>
</tr>
<tr>
<td>Seven</td>
<td>šālīb</td>
</tr>
<tr>
<td>Right</td>
<td>šāmūn</td>
</tr>
<tr>
<td>Nine</td>
<td>šītb</td>
</tr>
<tr>
<td>Ten</td>
<td>šākār</td>
</tr>
<tr>
<td>Hundred</td>
<td>mēšāh</td>
</tr>
<tr>
<td>Thousand</td>
<td>elef</td>
</tr>
</tbody>
</table>

### Personal Pronouns.

<table>
<thead>
<tr>
<th>Hebrew</th>
<th>Arabic</th>
<th>Hebrew</th>
<th>Arabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Pers. Sing.</td>
<td>ani, or kādi</td>
<td>āni, or nī</td>
<td>i or nī</td>
</tr>
<tr>
<td>Pl.</td>
<td>anahna</td>
<td>naḥnu</td>
<td>nu nī</td>
</tr>
<tr>
<td>2d Pers. Sing. m.</td>
<td>ata'</td>
<td>cē</td>
<td>cī</td>
</tr>
<tr>
<td>Pl. m.</td>
<td>atem</td>
<td>cēm</td>
<td>cūnna</td>
</tr>
<tr>
<td>3d Pers. Sing. m.</td>
<td>hāwah</td>
<td>o bū</td>
<td>ba</td>
</tr>
<tr>
<td>Pl. m.</td>
<td>hēn</td>
<td>šēna</td>
<td>nānna</td>
</tr>
</tbody>
</table>

### Demonstrative Pronouns.

<table>
<thead>
<tr>
<th>Hebrew</th>
<th>Arabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>This masc.</td>
<td>dāzā</td>
</tr>
<tr>
<td>These</td>
<td>fūtū</td>
</tr>
<tr>
<td>That masc.</td>
<td>dūzāca, or dūzāla</td>
</tr>
<tr>
<td>fem.</td>
<td>ḫūtū, or ḫūlāca</td>
</tr>
</tbody>
</table>

The relative pronouns are often expressed in both languages by the article. They also have these forms:

<table>
<thead>
<tr>
<th>Hebrew</th>
<th>Arabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>asher (ind.)</td>
<td>aladzdī (dec.)</td>
</tr>
</tbody>
</table>

### Interrogative Pronouns.

<table>
<thead>
<tr>
<th>Hebrew</th>
<th>Arabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who? mī</td>
<td>man</td>
</tr>
<tr>
<td>What? māh</td>
<td>mā</td>
</tr>
</tbody>
</table>

### Conjugation of the Present and Future Tenses of a Verb.

Lainad, to learn. | Kabala, to kill.

### Preterite Tense.

<table>
<thead>
<tr>
<th>Hebrew</th>
<th>Arabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sing. 1st pers.</td>
<td>lāmād-ti</td>
</tr>
<tr>
<td>2d p. m.</td>
<td>lāmād-ta</td>
</tr>
<tr>
<td>3d p. m.</td>
<td>lāmād-tu</td>
</tr>
<tr>
<td>3d p. f.</td>
<td>lāmād-ā</td>
</tr>
</tbody>
</table>

### Future Tense.

<table>
<thead>
<tr>
<th>Hebrew</th>
<th>Arabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plur. 1st pers.</td>
<td>lāmād-nūm</td>
</tr>
<tr>
<td>2d p. m.</td>
<td>lāmād-tem</td>
</tr>
<tr>
<td>3d p. m.</td>
<td>lāmād-ten</td>
</tr>
<tr>
<td>3d p. f.</td>
<td>lāmād-ū</td>
</tr>
</tbody>
</table>

### Words expressing relationship.

<table>
<thead>
<tr>
<th>Hebrew</th>
<th>Arabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father</td>
<td>Ab</td>
</tr>
<tr>
<td>Mother</td>
<td>ēm</td>
</tr>
<tr>
<td>Son</td>
<td>bēn</td>
</tr>
<tr>
<td>Daughter</td>
<td>bāθ</td>
</tr>
<tr>
<td>Brother</td>
<td>āḥ</td>
</tr>
<tr>
<td>Sister</td>
<td>āḥ, fem. of āḥ</td>
</tr>
</tbody>
</table>

### Parts of the body.

<table>
<thead>
<tr>
<th>Hebrew</th>
<th>Arabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head</td>
<td>rōth</td>
</tr>
<tr>
<td>Eye</td>
<td>'ayın</td>
</tr>
<tr>
<td>Mouth</td>
<td>pēh</td>
</tr>
<tr>
<td>Tooth</td>
<td>šēn</td>
</tr>
<tr>
<td>Ear</td>
<td>ozen</td>
</tr>
<tr>
<td>Hand</td>
<td>yād</td>
</tr>
<tr>
<td>Heart</td>
<td>lēt, or lēlāb</td>
</tr>
</tbody>
</table>

### Familiar objects, animate and inanimate.

<table>
<thead>
<tr>
<th>Hebrew</th>
<th>Arabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>God</td>
<td>el</td>
</tr>
<tr>
<td>Man</td>
<td>nāsab, ḥāl</td>
</tr>
<tr>
<td>Men</td>
<td>nāšīm</td>
</tr>
<tr>
<td>Lion</td>
<td>laylah</td>
</tr>
<tr>
<td>One of a flock, i.e., a sheep, or goat.</td>
<td>nēš, or nēšāb</td>
</tr>
<tr>
<td>Ox</td>
<td>ūlur</td>
</tr>
<tr>
<td>Sun</td>
<td>šamēsh</td>
</tr>
<tr>
<td>Star</td>
<td>cāzcab</td>
</tr>
<tr>
<td>Heaven</td>
<td>šāmāh-yim (sing.)</td>
</tr>
<tr>
<td>Earth</td>
<td>ārād</td>
</tr>
</tbody>
</table>
| Night | šēmḥūn, or šēmḥūn-
| Water | mā-yim (sing.) |
| Fire | aṣūr |
| River | nāḥār |
| House | bayīth |
| Wall | sūr |
| Name | šēm |

### Verbal Roots.

<table>
<thead>
<tr>
<th>Hebrew</th>
<th>Arabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do</td>
<td>pā'āl</td>
</tr>
<tr>
<td>Die</td>
<td>mūth</td>
</tr>
<tr>
<td>Eat</td>
<td>šālā</td>
</tr>
<tr>
<td>Laugh</td>
<td>nāšāk</td>
</tr>
<tr>
<td>Place</td>
<td>nāṣāb</td>
</tr>
<tr>
<td>Cry out (and hence read or recite)</td>
<td>kārā*</td>
</tr>
<tr>
<td>Read</td>
<td>kārā*</td>
</tr>
<tr>
<td>Shīne</td>
<td>hā'sal</td>
</tr>
<tr>
<td>Sit</td>
<td>gāšūn</td>
</tr>
<tr>
<td>Speak, or command</td>
<td>jālāsah</td>
</tr>
<tr>
<td>Command</td>
<td>Ṯā'mād</td>
</tr>
<tr>
<td>Stand</td>
<td>Ṯā'mād</td>
</tr>
<tr>
<td>Weep</td>
<td>ḥārā</td>
</tr>
<tr>
<td>Write</td>
<td>gā.sha'bā</td>
</tr>
</tbody>
</table>

* Compare ṭabar, tamar. † Compare sarūk, sarūk.
It would be an interesting object of inquiry, if we possessed sufficient data from which a satisfactory conclusion might be drawn as to the affinities which exist between other languages not related to the Indo-Germanic and Semitic families, and also to the advantage in an historical point of view; since the use of languages, closely related to each other in their grammatical structure and their principal roots, must be allowed to furnish a strong presumption, if not a direct proof, that all the languages that have originally been one and the same people, however much their moral and social circumstances may differ, and however distant they may be from each other in geographical position, such investigation might perhaps lead to the conclusion, that the great majority of the languages of the world, radically distinct from each other, is not so great as some philologists have represented; but at present our acquaintance with the greater number of languages is of too imperfect and unsatisfactory a nature to allow us to form an opinion on the subject. Our knowledge of many languages is limited to short lists of words, which have been copied down by voyagers or travellers, who have often only remained for a few days or weeks in the countries where the languages were spoken; and yet philologists have frequently ventured, on these lists alone, to maintain or deny the affinity of different tongues. Languages, such as the English and the Sanskrit, which differ in many important points, and which to a common observer may appear to be entirely distinct from each other, are spoken by migrations to be closely allied; whilst others, such as the Chinese and Polynesian, which have been thought by many persons to be nearly related to each other, are shown by the researches of modern philologists to have no affinity. A comparison of two different languages cannot therefore be safely conducted without a complete or at least a tolerable acquaintance with the vocabulary and grammar of each.

But though a more complete knowledge of the various languages at present spoken may enable us to trace affinities that have never been suspected; yet it is not to be supposed that any examination will enable us to discover so many points of resemblance as to prove that all languages may be referred to one common origin. Many languages, with which we are already acquainted, differ entirely in their vocabulary and grammatical structure, as to lead some philologists to the conviction that they were from the beginning formed upon different principles, and could never have had any connexion with each other. It may be asked, whence has this diversity of languages arisen? The common opinion, derived from the testimony of the book of Genesis, refers all mankind to one common parent; and it is believed by most persons that all mankind spoke one common language, till after the confused speech of the tower of Babel. It is commonly supposed that the 'Confusion of Tongues,' when God miraculously caused many different languages to arise in place of the one that had hitherto been spoken. But a careful examination of the tenth and eleventh chapters of Genesis will not allow us to admit this, or any similar statement. We are now convinced that the miracle consisted rather in a temporary confusion of mind, producing as its effect a corresponding confusion of expression, than in any miraculous change in the permanent dialect; it is evident from the tenth chapter of Genesis that the dispersion of Noah's family and their emigration to different parts of the earth happened previous to the confusion of tongues at Babel. Whatever this confusion of tongues may have been, it seems to have been merely that branch of Noah's descendants who remained in the land of Shinar, and could not therefore have affected the majority of the human race, who had already gone to other parts of the world.

Those persons who reject the popular interpretation of the eleventh chapter of Genesis, but at the same time believe that originally only one language was spoken in the world, maintain that the diversities of language may be accounted for by the mutual intercourse of different nations by long separation, distant emigrations, and new associations, constantly modifying the simplicity of earlier language; but allowing that these causes may have had great influence in modifying, and, to a certain extent, changing languages, we must not suppose that there is any great dissimilarity that exists between languages which appear radically distinct, such for example as the Chinese and Sanskrit, on the supposition that these languages were originally one and the same. The nations of Germany and India are widely removed from each other in geographical position; we know from history that they have lived under a different form of government, in a different state of civilization and in a different state of improvement for 2000 years at least, and yet the languages spoken by these people still continue to bear the most striking proofs of identity in their vocabulary and grammatical structure.

Another mode of accounting for the diversity of languages is by supposing that the earth must have been originally peopled by several separate races, with languages peculiar to each. This opinion extensively prevailed among the Greeks and Romans, and has been advocated in modern times by many celebrated writers, such as Niebuhr and Von Humboldt. This notion is based on the assumption that arises from the Mosaic account of the creation, which certainly indicates a different doctrine. Many biblical critics indeed maintain that the early chapters of Genesis are not to be interpreted literally, and that the word 'Adam' is particular merely means mankind in general, without determining the number of the species that were created. But such a mode of interpretation is open to many solid objections.

Many philologists have included all known languages under three great divisions, which they distinguish from one another by the following characters.

1. Languages composed of monosyllabic roots without any forms of grammar. To this class belong the Chinese languages, in which a meaning is expressed by the combination of a root and a word well designed for the purpose, and in which the meaning of sentences is determined, not by grammatical relations, but by the position of words in a sentence.

2. Languages composed of monosyllabic roots, but with a great abundance of grammatical forms. To this class the Indo-Germanic, Armenian, and other languages belong.

3. Languages whose verbal roots consist in their present form of two syllables, and require three consonants for the expression of their fundamental meaning. This class is limited to the Semitic languages, which contain only a few examples of compound words, and possess very few grammatical forms. It is however the opinion of Gesenius, Ewald, and the majority of Semitic scholars of the present day, that these languages are in a great degree monosyllabic; which could easily be proved to be the fact by an examination and dissection of the most simple roots of the Hebrew and Arabic languages.

Our limits do not allow us to give even a list of the known languages, far less to attempt any systematic account of them. We must refer our readers who desire information on this subject to Adelung's 'Mithridates,' continued by Vater, 4 vols., 1805–1817; 'Marsden's 'Catalogue of Diedrich's Languages,' and Marsden and Pott's 'Vater's 'Linguarium totius Orbis Index Alphabetici,' 1815, and 'Vergleichungstafeln der Europäischen Stamm- Sprachen und Süd-West-Asiatischer,' 1822. The principal varieties of the Arabic languages have a different form of root, and the Arabs, it is supposed, are a Semitic tongue, which could easily be proved to be the fact by an examination and dissection of the most simple roots of the Hebrew and Arabic languages.

In the languages spoken throughout these islands, he remarks that there is a manifest connection between the various languages of the world which the islands express their simple perceptions; and in some instances, places remote from each other, a striking affinity, insomuch that we may pronounce the various dialects, in a collective sense, to form substantially one great language.

With respect to the American and African languages, Dr. Prichard, who has devoted great attention to this branch of linguistic study, remarks that the native races of North America may be divided by a classification into a few great divisions, several of which extend as radii issuing from a common centre in the north-western part of the Continent, where it is divided from Asia by Behring's Strait. The tradition of greatest importance to nation and commonwealth seems to have derived credit from the discovery of a chain of nations extending almost from New Mexico to Mount St. Elias, in the neighbourhood of the Esquimaux Tushagaz, their language, particularly those of the
We borrow the above division from the 'Statistique de la France,' printed and circulated by the minister of public works and commerce of that kingdom, as being the most authentic source, and as giving the extent of each territorial division. The arrangement, comprehending districts partly feudal and partly ecclesiastical, is not good. The dioceses given therein extended over the following feudal districts:

<table>
<thead>
<tr>
<th>Capital</th>
<th>County of Toulouse</th>
<th>Albi</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Toulouse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L'Albigois</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Region of Mirepoix</td>
<td></td>
</tr>
<tr>
<td></td>
<td>County of Narbonne</td>
<td>Narbonne</td>
</tr>
<tr>
<td></td>
<td>County of Montpellier</td>
<td>Montpellier</td>
</tr>
<tr>
<td></td>
<td>Viscounty of Béziers</td>
<td>Béziers</td>
</tr>
<tr>
<td></td>
<td>Viscounty of Lodève</td>
<td>Lodève</td>
</tr>
<tr>
<td></td>
<td>Regions of Nîmes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L'Agenais, or district of Agen</td>
<td>Agen</td>
</tr>
<tr>
<td></td>
<td>L'Uzès, or District of Uzès</td>
<td>Uzès</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The whole of the dioceses of the province were sometimes arranged under the three great divisions of Haut (Upper) Languedoc, Bas (Lower) Languedoc, and Les Cévennes. Toulouse was the capital.

The name Languedoc does not appear to have come into use until the thirteenth century. Two languages, or dialects, predominated at that time in France, which took their designation from their affiliations. The dialect which prevailed north of the Loire was called Langue d'Oïl, or Langue d'Oc; otherwise the Occitanian, or Provençal language. [FRANCE.]

The most remarkable part of the Roman conquests in Gaul before the general subjugation of that country by Cæsar. The Provinciae of the Commentaries of that general was bounded by the Rhône, the Cévennes, and the Pyrénées. The part west of the Rhône comprised the greater part of Languedoc. The county of Toulouse formed the western extremity of Languedoc; and Cæsar informs us that the Tolosates, who occupied that district, were just within the Roman frontier. (Cæs. de Bell. Gall., i., 10.) In the subsequent divisions of Romanized Gaul, Languedoc was divided into parts, and a province was established in the province itself, the subdivision of that province, in Narbonensis Prima. The Celtic tribes which inhabited it were: the Tectosages (about Carcassonne), the Tolosates (about Toulouse), and the Aremocini (between the Cévennes, the Rhône, and the Mediterranean, from Béziers to Uzès); these were divided into three divisions of the Volsci; the Atacini (on the Aix, or Aude), and a portion of the Cossonarini (Cuézans and Foix), the Gabali (Gevaudan), the Helvii (Vivarais), and the Velavi (Ariège). The Gabali and Velavi in Aquitania Prima, which makes it probable that these tribes were not included in the Province of the Romans before Cæsar's time. In the declination of the power of this country, and the subdivision of Narbonensis Prima was occasionally designated Septimania, from its several dioceses of Toulouse, Béziers, Nîmes, Agen, and Mauguiole (Montpellier), Lodève, and Uzès.

In the year 412, Languedoc, through which the Vandals and Alans had marched into Spain, was seized by the Visigoths under their king Ataulphus. (Ataulphus.) They however quitted it soon after to proceed to Spain: but upon their return from that country they received the cession from the Romans of the city and territory of Toulouse, with the parts of Aquitania west of it. It was made Toulouse the capital of the kingdom which they established, the boundaries of which they soon extended to the banks of the Loire and the Rhône, comprehending the whole of Languedoc and several other provinces. A battle of Vougli or Voulli (A.D. 507) broke the power of the Visigoths; and Toulouse came into the power of Clovis, king of the Franks. (Clovis: France.) The greater part of the Narbonensis Prim was thus preserved, and the Romans remained however to the vanquished nation, and bore under their waves the names of Narbonna and Septimania; this province was under the government, in military and civil affairs, of a count or duke, an officer of the highest rank, appointed by the king of the Visigoths of Spain.

In the earlier part of the eighth century, the Saracens having conquered Spain, and put an end to the kingdom of the Visigoths, Septimania fell into a state of anarchy. It remained however in the hands of the Visigoths, and became the place of refuge for those who fled from the Sar-
De la Bref in the year 753 drove the Saracens from Languedoc. He took Narbonne after a siege or blockade of seven years; and then attacking Waifre, duke of Aquitaine, reduced Toulouse, the Albigeois or district of Albi, and Gavaudan, which were in possession of Waifre, who had married his sister. Under Charlemagne, Toulouse was made the seat of a count, and gouvernor, and in the reign of Louis le Debonnaire, his son, the maritime part of Languedoc was formed, with the adjacent part of Spain, into a duchy, under the name of Septimania, or Gothia. This duchy was afterwards reduced to a marquisate, and the Spanish portion (the March of Spain) was taken from it and made a separate government. The marquisate of Septimania was subsequently united with the crown of France, and the south of France became masters of nearly the whole of Languedoc; but were enabled, during the feeble reigns of the later Car-
wingian and the earlier Capetian kings, to set a leading example in the south of France. They were among the six next foundations of the anti-pope who espoused the cause of the Albigenses, and had the right of nomination to the vacant sees and dioceses within their dominions. They were aided successively of Rouergue, Quercy, Auvergne, and Velay, by the papacy. Raymond V., count of Toulouse, was one of the princes who took part in the first Crusade. He bore the titles of count of Toulouse and Provence, duke of Narbonne and marquis of Gothia, and was one of the most powerful princes of his time. He conquered the other provinces of France; he was the only subject of the pope, and was the pope's representative in the kingdom. He was deposed at the head of an army of knights, and at the capture of Jerusalem, Raymond highly distinguished himself; and the historians of Languedoc write that the throne of Jerusalem was offered to him and refused by him before it was conferred upon Godfrey of Bouillon, who accepted it himself and his domain. Raymond's cousin, Alexis Comnens was at the head of a body of Latin troops, supplemental to the first Crusade, Raymond was treated with the Turks, and afterwards made prisoner at Acre by Tancred, one of his fellow-crusaders, and having obtained his release, he took several places in Asia, and died A.D. 1165, while besieging the city of Taras-
hos, or Tripoli, in Syria.

Before his departure Raymond IV. had made over the government of his hereditary dominions, which extended over the Pyrenees to the Alps, to his son Bertrand, who, saving possession of them, after a severe struggle with the duke of Aquitaine, followed his father's example, embarked, A.D. 1199, for the East with an army of nearly a hundred knights. He was received by ninety Genoese and Pisan vessels; after visiting Constantinople and Antioch, formed the siege of Tripoli, which his father had attacked in vain, saving the place, became the capital of a county, and feodal dependency of the Latin kingdom of Jerusalem; the county Bertrand held during his life and transmitted to his younger son Pons, in whose posterity it remained united with the principality of Antioch.

On the death of Raymond IV., A.D. 1192, he was succeeded by his European dominions by his brother Alfonse Jourdain, who had been born in Palestine, A.D. 1163, and baptized in the river Jordan, from whence he took his name. During a minority of about seven years of age, he was placed under the guidance of the duke of Aquitaine; but was restored by the authority of the people of Toulouse, who seized the oppor-

tunity of the moulder's absence to throw off the yoke. The fidelity of the same people afterwards rewarded the county of Toulouse by the donation of Louis VII., who laid claim to it in right of his wife Eleanor of Guinene. Alfonse, following the example of his father and brother, embarked in the second crusade, A.D. 1147, for the Holy Land; and died at Acre almost immediately upon his arrival, of poison administered to him by Melisende, queen of Jerusalem.

Raymond V., who, with his brother Alfonse II. succeeded to the county of Toulouse, had to maintain a struggle with Henry II. of England, who, having married a daughter of Guinevere, urged the same claim as her former husband Louis VII., who had divorced her. Henry advanced victoriously to the walls of Toulouse; but the arrival of Louis VII., who undertook the defence of Raymond, and threw himself with his forces into the hands of Alphonse, to raise the siege, professedly from respect to the standard of his suzerain, the king of France. In his retreat he took Cahors, the capital of Quercy, and several other places from Raymond. The war was finally terminated by peace, one of the conditions of which was that the count of Toulouse should acknowledge Henry as his suzerain, saving the allegiance which he owed to the king of France as lord paramount. Raymond was also involved in the disputes with the pope, arising from the sale of the papacy. He was excommunicated by anti-pope Paschal, and exiled all the ecclesiastics who refused to acknowledge him: this brought his domains under an interdict from Pope Alexander III. He was afterwards reconciled to the pope, abandoning the cause of Calixtus, who had endorsed Paschal's depositions. Raymond was again embroiled with Henry II. of England and with Richard, son of Henry, to whom his father had ceded the duchy of Guinene, or Aquitaine. Raymond terminated his unquiet life A.D. 1194.

His successor, Raymond VI., is known by the misfortunes in which his protection of the Albigeois involved him. The extensive dominions of the counts of Toulouse contained a population more advanced in intellect and civilization than the rest of France; they were the only part of the whole church that excelled great attention, and the heresy, as it was termed, of the Albigeois, or Albigenses, had widely spread through Languedoc. [Albigenses.] Raymond V. had desired to repress it, but the troubles of his reign had prevented it. In the time of Raymond VI. the pope Innocent III. despatched legates into the infected districts, with directions to claim the aid of the secular arm in the sup-
pression of the new tenets. Raymond shrank from the idea, and although the office of the legates induced him in 1205 to promise upon oath to expel the Albigenses from his dominions, he does not appear to have taken any steps to fulfill his promise; and the refusal to bind himself to it by treaty brought a crusade against him. At a later period, in 1218, the subsequent murder of Pierre de Castelnau, one of the papal legates, by an unknown assassin, whom Raymond was charged with employing, induced the pope to proclaim a crusade against him and the Albigenses. Those who engaged in it wore the cross on the breast, in contraintestinction to those who embarked for the Holy Land, who wore it on the shoulder.

The irritation of 500,000 fanatics into Languedoc alarmed Raymond, who took every means to be reconciled to the church. He made his appearance before the council of Valence, and after submitting to be scourged at St. Giles, by Milan, the pope's legate, he obtained absolution, and the pope also assumed the cause of his son against his enemies. Raymond had also in his dominions a hundred knights. He was visited on his way by ninety Genoese and Pisan vessels; after visiting Constantinople and Antioch, formed the siege of Tripoli, which his father had attacked in vain, saving the place, became the capital of a county, and feodal dependency of the Latin kingdom of Jerusalem; the county Bertrand held during his life and transmitted to his younger son Pons, in whose posterity it remained united with the principality of Antioch.

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unhappy Raymond now found himself not only abandoned but attacked by his own brother Baudouin, who joined the crusade. He was besieged in Toulouse, but a successful sortie raised the siege. His army was however subsequently defeated at Castelnaudary, and he obtained but a short respite by suspending the crusade by excommunication in January 1147. The war soon broke out again; and the count of Toulouse, with his ally the king of Aragon, fell in the combat, having suffered a dreadful defeat at Muret, the context was terminated by his submission, and the succession of Raymond VII was held by Simon de Montfort, to whom the county of Toulouse, properly so called, was granted by the council of Montpellier in 1215. Only a portion of his domains remained to Raymond.

The fall of the people of Toulouse for their hereditary princes enabled Raymond before his death to recover the greater part of his dominions. He entered Toulouse a.d. 1217, and though twice besieged, first by Simon de Montfort in person, who was killed before the place, and his son Amaury de Montfort, and the second time by Louis, son of Philippe II, king of France, he maintained possession till his death, a.d. 1222. Raymond VII, son and successor of Raymond VI, pressed Amaury de Montfort so close, that he obliged him to retire into the domains of the French king. Louis VIII, to whom he ceded his right over the conquests made by the crusaders. Raymond had now to struggle with the power of the crown; and though the death of Louis VIII. delivered him from the hostility of his princes, he was obliged to purchase peace of his successor Louis IX., a.d. 1229, by the cession of many parts of his once extensive dominions. In his time the Inquisition was established at Toulouse, to extirpate the remains of the Albigenses; but the jurisdiction of the Inquisition of Toulouse was so odious to the people, who drove them from the city. Raymond incurred repeated sentences of excommunication for his real or supposed connivance at the tumults of the people. He was subsequently engaged in hostility with Louis IX. He died a.d. 1249, and in him ended the male line of the counts of Toulouse. His states came to Alfonse, count of Poitiers, and brother of Louis IX. of France, who had married Jeanne, heiress of Raymond. Upon the death of Alfonse and of the last of his line, a.d. 1271, the county of Toulouse came to Philippe III., king of France, whose successors on the throne held the county till a.d. 1361, when it was united to the crown. The remainder of Languedoc had been in great part united to the crown by the kings Louis VIII. and IX., who had obtained them by force or cession from the counts of Toulouse.

The separate history of Languedoc terminates with the extinction of the county of Toulouse, subsequent events forming part of some general history of France. The heresy of the Albigenses was in appearance suppressed, but the principle of opposition to the court and doctrines of Rome was probably smothered rather than extinguished; for when the war of France was at a subsequent period numerous enough to make head again, the crown, Languedoc was one of the provinces in which they most abounded. Even after Protestantism had been repressed in other parts of France, the Protestants made head against the government here. The number of them in this part may be inferred from the estimate that nearly 200,000 were brought to abjure their religion by the stringent arguments of Louis XIV., beside those who went into foreign countries; and even now the Protestants are tolerably numerous.

Under the monarchy Languedoc was one of the Pays d'États. The states consisted of the clergy, three archbishops, and twenty bishops; the noblesse, among whom the Count of Alais held the first place; and the Commons, consisting of the consuls and deputys of the episcopal and other towns. The archbishop of Narbonne was perpetual president of the states. Their chief business was to appor- tion among the different parts of the province the taxes levied for the support of the king. The bishops held a court of justice, which acquired an odious celebrity from its unjust decision in the case of Calas in the middle of the last century.
Lanier had purposely abstained from reading the latter works until he had completed his own. In fact, although assembling each other in their general scope, the two works are very dissimilar in character and style, and in their respective merits. One proof of its popularity is, that 'An-

ammi,' or 'the Serious Studies' consists also his ser-

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200), Storia additionally therapeutically serious time. studies, literary the now Lanzi's

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Laocoon, and regard

an enduring celebrity has been gained for this story

ring the subject of one of the most remarkable

groups in sculpture which time has spared to us. It

presents the aconized father and his youthful sons, one on each side of him, writhing and expiring in the complicated folds of their garments, and as the serpents are made to introduce being only used to support and fill up the

position. This superb work of art, which Pini describes

inaccurately as consisting of only a single block of marble

(for in spite of this mistake there seems to be no doubt in

the opinion of the learned that this is the same group

alluded to by that writer), originally decorated the baths

of Titus, among the ruins of which it was found in the year

1806. The names of the sculptors who executed it are also

recorded. They are Aesopander, Polydorus, and Athena-
dorus, natives of Rhodes. Pini (xxvi, 5) says, 'Laocoon,

which is in the house or palace (domo) of the emperor

Titus, is a work to be preferred to all others either in paint-

ing or sculpture. Those great artists Aesopander, and Poly-
dorus, to Rhianos; the former produced the figure (eun)

and the sons, and the wonderful folds of the serpents,

out of one block of marble.'

There has been much difference of opinion among

antiquaries on several points respecting this group: first,

to the date of the artists; Whittaker maintains that they are

of a good period of Greek art, as early as Lywupp. A considerably later date is now

however attributed to them; and the next question dis-

cussed is, whether the sculptor ought to be referred to

Virgil's fine description (Aenid, ii, v. 200), or whether the poet was indebted to the artist. With

respect to date, the most careful consideration seems to fix

the sculptors as late as the early emperors; and Lessing,

whose work on the Laocoon deserves the attention of

all those who take an interest in the philosophy and capacities of

art, believes they lived in the reign of Titus. With regard

to the subject, it is most probable that the story, being well

known, afforded advantages for illustration in theRAPA

as it did for description to the poet. As Virgil's priest was

habituated in his robes during the exercise of his priestly func-

tions, and the group under consideration is entirely naked,

the argument is additionally strengthened against the as-

signment of the sculptors. It is not only more natural to believe that each drew from a

common source, and treated the subject in the way best adapted to the

different arts they exercised; the sculptor's object being

concentration of effect, the poet's amplification and brilliant
description.

This group is justly considered by all competent judges to be a masterpiece of art. It combines, in its class, all

that sculpture requires, and, we may say, admits of, and

may truly be studied as a canon. The subject is of the most

affecting and interesting kind; and the expression in

every part of the figures reaches, but does not exceed, the

limits of propriety. Intense mental suffering is portrayed

in the countenances, while the physical strength of all the

figures is combined with the irresistible power of the huge reptiles, that wretched

limbs. One son, in whose side a serpent has fixed its

deadly fangs, seems to be fainting; the other, not yet bitten,

tries (and the futility of the attempt is faithfully shown) to

disable one foot from the serpent's embrace. The father,

Laocoon himself, is mighty in his suffering: every muscle

is in extreme action, and his hands and feet are convulsed with

painful energy. Yet there is nothing frightful in the

treatment, or contrary to the laws of art. Suffering

is faithfully and strongly depicted there, but it is rather

the exhibition of mental anguish than of the ugly and

undignified contortions of mere physical pain. The whole of

this figure displays the most intimate knowledge of

outward form; the latter selected with care, and

freed from any vulgarity of common individual nature: indeed the single figure of Laocoon may be fairly referred to

as one of the finest specimens existing of that combination.
of truth and beauty which is so essential to the production of perfect sculpture, and which can alone insure for it lasting admiration. The youths are of a smaller standard than the proportion of the father: a liberty hardly justifiable, but taken probably with the view of heightening the effect of the principal figure. The right arm of the figure of Laco-

conia is much more satisfactorily indicated than the left, and his action was not extended, but that this arm was bent back towards the head; and have supported their hypothesis by the fact of there being a rough and broken surface where there must, or perhaps is a fold of the serpent, may have come in contact with the hair.

It has been stated that the group was found in Rome in the year 1806. There is a curious letter, not generally known, but published by the Abbate Fen, from Francesco da Sermaggio, dated 1525, in which the circumstances of the discovery are alluded to. He says, 'It being told to the Pope that some fine statues were found in a vineyard near S. Maria Maggiore, he sent to desire Giovanni da San Galle (the father of the writer) to go and examine them—that Michel Angelo Bonarotti was being often in their house, San Gallo got him to go also; and so,' says Francesco, 'I mounted behind my father (in
groppo a mio padre), and we went. We descended to where the statues were; my father immediately exclaimed, this is the Lacocon spoken of by Pliny.' They made them enlarge the aperture or excavation so as to be able to draw them out, and then, having seen them, we returned home to discuss the group of 'Lacocon and his Sons' in the preserved among the treasures in art in the museum of the Vatican at Rome.

LAOMEDA, a genus of Polyparia, established by Lamouroux to include species ranked by previous writers of the order Pteropoda.

LAON, a town in France, capital of the department of Aisne, 82 miles from Paris on the high-road by Avesnes and Maubeuge to Mons and Brussels. It is situated on a steep isolated hill about 300 feet high, which commands on every side an extensive view over the surrounding country. It is said to have taken its origin, in the reign of Clovis, from a castle which stood on this eminence. In the later period of the Carolingian dynasty it was frequently the residence of the kings of France, and it continued throughout a part of the domain of the crown. It was before the Revolution the see of a bishop, a suffragan of the archbishop of Reims. The town consists of one principal street, rather narrow, and several smaller streets very narrow: it is surrounded by an ancient wall, flanked with towers, and by a boulevard, or public walk, on the brow of the hill. At the foot of the hill are the suburbs. The population in 1856 amounted to 8320. The cathedral is a beautiful building with four towers, and three other churches. There are a seminary for the priesthood, a community of the Sœurs Gria, two hospitals, one of them for foundlings, and a poor-house. There are bands and a theatre. In the suburbs are potteries and tan-yards, lime-kilns, and a porcelain factory of coppers. The neighbourhood produces grain and wine, and many artichokes are grown for the supply of Paris. There is a high-school, with a museum of natural history attached, a public library of 12,000 vols., and a drawing-school.

Laon was besieged in the civil contests of the Armagnacs and Bourguignons, and was taken from the League by Henry IV. in 1569.

In 1814 it was the scene of a severe action between the French army and the allies, and comprehends 11 cantons and 299 communes, with a population in 1831 of 164,114.

LAOS, the country of the Laos, or Lowas, comprehends the central portions of the peninsula without the Ganges, lying between 25° and 24° N. lat., and 106° and 103° E. long. It borders on the south on Siam and Cochim China, on the east on the last-mentioned country, on the north on China, on the west on the Laotian empire, and south-west on the country of Martaban, which was taken in 1826 from the Burmese. According to the calculation of Bergbhaus, its area covers 130,000 sq. miles, or about 18,000 square miles more than the British empire.

Being surrounded on all sides by countries whose governments have always shown a great degree of jealousy towards foreigners, our knowledge of this country is very scanty and unsatisfactory. The western portion of it, extending along the banks of the Saluen river, which divides Laos from Burma, is covered with mountain-ranges, which do not attain the snow-line, but rise in some parts to a considerable height, as the thermometer was observed to stand at 46° at eight o'clock in the morning. This mountain-region seems to be intersected by wide valleys, and is intersected by the courses of the rivers, which are of great fertility, but low, and subject to frequent and extensive inundations. The southern portion of it, which is a great part of the Mekkhaun, or the river Camboja, seems to contain more level land than the rest of the country; but this opinion is only a supposition, as this part of the country has never been visited by Europeans. Along the eastern border of Laos runs the Mekkhaun, or the river Camboja, which separates it from Cochim China and Tonkin. It rises to a considerable height, but the elevation has never been determined. The greatest part of the country is covered with forests, and swamps or stagnant waters, which are produced by the inundations of the numerous rivers which descend from the high ranges surrounding the elevated table-land of Yunnan in China.

The largest of its numerous rivers are the Saluen [Burma-

iv., 1814], the Mekkhaun, the Anan, the Hoan, and the Menam, or river of Siam, which flows through the central portion of the country between the two first-named rivers. It rises on the western declivity of the table-land of Yunnan, in two branches: the one the Mae-ghie, the other the Mae-mañ, the latter. They unite south of 22° N. lat., after their junction, preserve the name of Man
craun, and also their southern direction. Where the Mae
craun approaches the boundary of Siam (near 16° N. lat.), it becomes divided into two branches, which are known up to its mouth in the Gulf of Siam. It seems almost certain that a natural water communication exists across the river and its more eastern neighbour, the Maekhaun. At about 20° N. lat., the Maekhaun divides into two branches, which flow north-south-west until it joins the Mae-praan, south by 10° N. lat. This natural canal is said to be navigable for river barges. The whole course of the river Menam probably exceeds 800 miles, and it is navigable for under decks of its course, though several rapids occur in it.

We have no account of the climate of Laos, but it is observed that rice is the principal grain cultivated, and that no wheat is grown, we may consider that the latter portions do not materially differ in climate from Bengal. All fruits which grow in southern Asia succeed, with one or two exceptions, and some of them are sent to the neighbouring countries, as oranges to Ava. Cotton is cultivated to a great extent, and much silk is collected, as well as lac-gum, among the wild orchidacea are abundant. Cattle and buffaloes abound. In some of the northern districts the tea plantations are very extensive: the leaves of the plant are not dried, but salted and prepared for a manufactor for the neighbouring countries. The mountainous parts, and especially those districts which are contiguous to Yunnan are very rich in metals. Gold abounds in many rivers, and silver-mines are worked to a great extent by Chinese miner-Copper occurs in many places, and tin in a few. Iron ore is found farther south in the country, on the banks of the Saluen river, and the natives make good fire-arms. Rock salt also occurs in these parts.

The country is said to be the original stock of a nation which is widely dispersed over the peninsula without the Ganges, to the east of the river Saluen. They resemble the inhabitants of Siam and Camboja in the form of their bodies and in language. Their language differs so little from the Siamese, that it is only considered a dialect of it. All the nations belonging to this stock are called Shan, which by Europeans has been changed into Siam. The inhabitants of Laos are distinguished among the Shan by their style of Lan-pung-kau (white Lan) and Lan-pung-dam (black Lan) from whom the Shan are supposed to have inherited the more mountainous and elevated parts of the country, and the latter the plains. According to Gudin they are inferior in civilization to the Siamese, except these southern divisions, who have adopted the arts of the Chinese. Yet even the rest seem to have made considerable progress in agriculture, horticulture, and the various arts of civilized life. They are
Buddhists, and their sacred books are written in the Pali language. Though they have a national literature, they are not very anxious to study it. Their best books treat of the common occurrences of life, in prose.

Laos is divided into three great portions. The most north- eastern part is called Lanchang, and the country of the Luang, or the country of the Lowa-Shan; its capital is Kenmah. South of it lies Lutuo, or the country of the Yun-Shan, with the capital Ziaenma, or Changhai. The south-eastern part is called Lanchang, or the country of the Lowa, which is after Lagrange, is said to be Lanchang, or Zandapuri. To these three great divisions is to be added Tarout, which lies north of Lanchang, and seems to be incorporated partly with Yun-nan and partly with Siam. With the latter part of this country, it has generally been subject to the neighbouring countries in modern times.

Towards the end of the last century, the dominion of the Siames seems to have extended over nearly the whole of this country, but since that time the greatest part has re- covered its independence. But as it is governed by a great number of petty hereditary sovereigns, it has been unable to preserve its independence, and in modern times the people have fallen under the dominion of the Siames government. Whether or not the king of Cochin-China exercises any authority over Lanchang is not positively known, but it is probable that he does.

The trade of view. He from Siam, Bir- ma, and China. It exports to Siam musk, gold, lac, slaves, ivory, rhinoceros horns, benzoin, hides and tiger skins, silk and silk stuffs, precious stones, and salt. Its commerce with Ava, the capital of Burma, is almost beyond calculation. To that town and Kayhimon, the capital of the Lowa-Shan. The merchandise is transported over high mountains on carts drawn by buffaloes. Laos exports to Birma cattle, gold, silver, precious stones, and fruits, and receives in return iron-ware, yellow and purple sandal wood, cotton cloth, chintz, and terra-japonica, spum, and other articles procured from Hindustan. The road which leads to Yun-nan appears also to cross the town of Khamala, and thence to ascend to the table-land of Shensheng. Of the provinces during the last century seems to be very active, in spite of the numerous obstacles presented by a road leading over several mountain- ranges. The merchants of Laos export gold, precious stones, silver, tin, lead, and some red sulphur, cotton wood and salted tea, lac, sapan wood, brass, and an officinal root, called caussa-bous. The Chinese bring to Laos musk, chowy-tails, and various other articles, raw and manufac- tured.

Francis Hamilton, in the Edinburgh Philos. Journal; Crawford's Embassy to the Court of Ava; Gutzlaff, in the Journal of the London Geogr. Society, vol. iii.; and Richardson, in the Asiatic Journal; Berthau’s, Map and Table of the Kingdom of Laos.

LAPIS LAZULI. [Lapislute.] L’APITHÉ. [CENTAURE.] LAPISTE. PIERRE SIMON. A life of Laplace can hold no middle place between a short account for the general reader, and a detailed description of his labours for the reference of those who read his works. Independently of the latter being too long for this work, we have a specific reason for avoiding it, which will appear in the course of this article: namely, that the writings of Laplace do not give us the information respecting his private life which the writings of others; and that one has not yet supplied the deficienc. The few facts connected with his personal life are drawn from the éloge of Fourier, or from the 'Biographie des Savans Contemporains.'

Pierre Simon Laplace was born, March 1749, at Beaumont-en-Auge, near Honfleur, and was the son of a farmer. He received a good education, and appears at first to have turned his attention to theology; but as early as the age of fifteen, he had begun to study science, and was went directly to the study of mathematics at his native place. He had letters of introduction to D’Alembert, but finding that they procured him no notice from that philosopher, he wrote him a letter on some elementary points of mechanics, which produced such an impression on D’Alembert that he secured for Laplace the same day, telling him that he had found a better way of calling attention to his claims than by letters of introduction. Very shortly afterwards the recommendation of D’Alembert pro-

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cured for Laplace a chair of mathematics at the military school of Paris. This took place in 1768 or 1769; in 1772 Laplace showed his powers in a paper on integration of equa-
tions of finite differences in the Memoirs of the Academy of Turin; and from that time his scientific life was one achieve-
manship after another. He was attached to the Newtonian with the world at large, and of the highest extent and character among mathematicians, who, though they cannot even compare walks of so different a kind as those of Newton and Laplace, feel that the latter must be named before the other, and the two together above all the fol-

The political life of Laplace was not so favourably distin-
guished. In 1799 the First Consul made him minister of the interior, a position which he always occupied. With the spirit of the revolution he had little sympathy; with respect to science, it is not wonderful that he should have made the experiment of trying to strengthen his administration by the assistance of a philosopher whose rising fame made the French expect to claim a name which should rival that of Newton. But the experiment was not successful; and after a very short period the First Consul removed Lap-

place to the head of the sénat conservateur. The subse-
quent account given by Napoleon of his minister will, be a part of the biography of Laplace in all time to come. A *mathematician of the highest rank, he lost not a moment in showing himself below mediocrity as a minister. In his very first attempt at business the consuls saw that they had made a mistake. Laplace looked at no question in its true point of view; he was always reasoning from his ideas were problems, and he carried the spirit of the infinitesimal calculus into the management of business.* This pointed satire is not, we suspect, one of which the force will be always admitted. First of all, there is a justifiable question of the existence of God; Laplace is not a believer in his ideas were problems, and he carried the spirit of the infinitesimal calculus into the management of business.* This pointed satire is not, we suspect, one of which the force will be always admitted. First of all, there is a justifiable question of the existence of God; Laplace is not a believer in

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In 1814 he voted for the deposition of his benefactor, a step which might have been justifiable on public grounds: but nothing can excuse the suppression of the dedication to Napoleon, which stood at the front of his "Théorie des Pro-

vabilities" during the period of Napoleon's consulate. The revolution we have no account, except that he was at one time under the suspicion of the authorities, and was removed from the commission of weights and measures.

Any account of such a man as Laplace, written so short a time after his death, can only be an attempt to be looked upon as provisional. In giving all we know, we desire our readers to remember that no authentic Life of him has issued from the French press, except only the pro-

fessed éloge of Fourier, which had been written by him, and in which the character which have been made upon many in this country, we should in any way be instrumental in inducing those who best knew him to destroy the basis on which they are formed, we shall do service to his reputation; but if that basis cannot be destroyed, we are only doing the duty of biographers. We say then, that in the suppression of the dedication, which we now cite entire, and which appeared in 1812, and not in 1814, there is a priviéd fatigue appearance of ingratitude and partiality, the evidence of which, if not supported, should be perpetuated.

A Napoléon le Grand. — Sire, La bienveillance av

quelle V.M. a daigné acquitter l'hommage de son traité de Mécanique Céleste, m'a inspiré le désir de vous soumettre un ouvrage sur le calcul des Probabilités. Ce calcul déficit n'est point aux questions les plus importantes de la vie, qui ne sont en effet que pour la plupart que des problèmes de probabili-

It doit sur ce rapport intéresser V.M., dont je suis bien apprivoisé et digne mouvement au progrès des lumières et de la meneur de l'état de la conjecture publique. J'ose la suprimer d'agréer ce nouvel hommage de la plus vive reconnaissance, et par les sentiments profonds de l'admiration et de respect avec lesquels je suis, de V.M. le soumettre aux regards de Votre Majesté, et fidèle sujet, Laplace.

As if to make such a suppression as striking as possible, Laplace had said, ten years before, in the dedication of the third volume of the 'Mécanique Céleste,' to the First Con
On General and on the Laplace System of Philosophy.

The Author of the Mécanique Céleste, to use a common expression for Laplace, must be an object of the admiration of posterity as long as any record of the eighteenth century exists. With the exception of some experiments made in conjunction with Lavoisier, to determine the quantity of different bodies, we have no idea of the work he employed in actual experiment. But for many years he was the head, though not the hand, of European astronomy; and most of the labours of observation were made in directions pointed out by him, or for the furtherance of his discoveries in the consequences of the law of gravitation. Before however we begin to speak of them, there is an important caution, for the want of which a reader of the Mécanique Céleste might even ovetread Laplace, great as he is. The number of writers on mathematical subjects has for a long time been wedded to the reproachable habit of omitting all notice of their predecessors, and Laplace is the most striking instance of this practice, which he carried to the utmost extent. In that part of the Mécanique Céleste which deals in the theory of Lagrange, there is no mention of the name of the latter. The reader who has studied the works of preceding writers will find him, in the Théorie des Probabilités, anticipated by De Moivre, James Bernoulli, &c., on certain points. But there is not a hint that any one had previously given those results from which perhaps his sagacity led him to his own more general method. The reader of the Mécanique Céleste will find that, for any thing he can see to the contrary, Euler, Clairaut, Lambert, and above all Lagrange, need never have existed. The reader of the Système du Monde finds Laplace referring to himself in almost every page, while now and then, perhaps not twenty times in all, his predecessors in theory are mentioned with a scanty reference to what they have done; while the names of observers, between whom and himself there could be no rivalry, occur in many places. To such an absurd pitch is this suppression carried, that even Taylor's name is not mentioned in connexion with his celebrated theorem; but Laplace gravely informs his readers, 'Nous donnerons quelques théorèmes généraux qui nous seront utiles dans la suite,' those general theorems being known all over Europe by the names of M. M. d'Euler et de Lagrange. And even in his Theory of Probabilities Lagrange's theorem, for which he found the number 21 of the second livre de la Mécanique Céleste. It is true that at the end of the Mécanique Céleste he gives historical accounts, in a condensed form, of the discoveries of others, and many accounts never having answered the question—Which pages of the preceding part of the work contain the original matter of Laplace, and in which is he only following the track of his predecessor? The conclusion is, that a student who has followed the writings of Laplace with that admiration which they must command, is staggered when he comes afterwards to find that in almost every part of the work there are important steps which do not belong to Laplace at all. He is then and again led to the erroneous idea that he reads more extensively than he shall find himself obliged to restore more and more to the right owner, until nothing is left which can make a reputation such as that of Laplace with the world at large. Such an impression would be wholly incorrect; but it would be no more than the just reward of the practice of suppression. Nevertheless the researches on the figure of the planets in the Mécanique Céleste, and the general method of the Théorie des Probabilités for the approximation to the values of finite integrals, are a sufficient, when all needful restoration has been made, to enable us to say, that Laplace was one of the greatest of mathematicians.

The second volumes of the Mécanique Céleste appeared in the year VII. of the Republic (which lasted from the 21st April, 1798, to the 20th June, 1799), and may have been the inducement of the First Consul to make Laplace a member of the government. The third volume appeared in 1802, the fourth in 1805, and the fifth in 1825. One posthumous Supplement has appeared.

The headings of the chapters throughout will be a more useful appendage to an article in a work of reference than any account which we could find room for, especially with regard to a philosopher whose discoveries are, like those of Newton, dwelt on in every popular work.

Book I. On the General Laws of Equilibrium and Motion.

Chapter 1. On the Equilibrium and Composition of Forces which act on a Material Point.

Chapter 2. On the Motion of a Material Point.

Chapter 3. On the Equilibrium of a System of Bodies.

Chapter 4. On the Equilibrium of Fluids.

Chapter 5. General Principles of the Motion of a System of Bodies.

Chapter 6. On the Laws of Motion of a System of Bodies, for all Relations between the Force and Velocity, which are mathematically expressible.

Chapter 7. On the Motion of a Solid Body of any Figure.

Chapter 8. On the Motion of Fluids.


Chapter 2. On the Differential Equations of the Motion of a System of Bodies acting on each other by their mutual Attraction.

Chapter 3. First Approximation to the Celestial Motions, or Theory of the Elliptic Motion.

Chapter 4. Determination of the Elements of the Elliptic Motion.

Chapter 5. General Methods for determining the Motions of the Heavenly Bodies by successive Approximation.

Chapter 6. Second Approximation to the Celestial Motions, or Theory of their Perturbations.


Chapter 8. Second method of Approximation to the Celestial Motions (by the Variation of Elements).
Chapter 2. Inequalities depending on the Square of the Disturbing Force.

Chapter 3. Perturbations due to the Ellipticity of the Sun.

Chapter 4. Perturbations of the Motion of the Planets, arising from the action of their Satellites.

Chapter 5. Considerations on the Elliptic part of the radius Vector.

Chapter 6. Numerical values of the quantities contained in the expressions for the Planetary Inequalities.


Chapter 8. Theory of Mercury.


Chapter 10. Theory of the Motion of the Earth.

Chapter 11. Theory of Mars.


Chapter 15. On some equations of condition which exist between the Planetary Inequalities, and which serve to verify them.


BOOK VII. Theory of the Moon.

General considerations not arranged as a chapter.

Chapter 1. Integration of the Differential Equations of the Lunar Motion.

Chapter 2. On the Lunar Inequalities due to the Nonsphericity of the Earth and Moon.

Chapter 3. On the Lunar Inequalities due to the Action of the Planets.

Chapter 4. Comparison of the preceding theory with observation.

Chapter 5. On an Inequality of long period which appears in the Lunar Motion.

Chapter 6. On the Secular Variations in the Motion of the Moon and the Earth, which may be produced by the resistance of an Ethereal Fluid.

In vol. iv. are contained—

BOOK VIII. Theory of the Satellites of Jupiter, Saturn, and Uranus.

Chapter 1. Equations of Motion of the Satellites of Jupiter, taking into consideration their Mutual Attractions, and of the Sun, and that of the Oblate Spheroid of Jupiter.

Chapter 2. On the Inequalities of the Motion of Jupiter's Satellites, independent of the Excentricities and Inclinations of the Orbits.

Chapter 3. On the Inequalities of the Motion of the Satellites, depending on the Excentricities of the Orbits.

Chapter 4. On the Inequalities of the Motion of the Satellites in Latitude.

Chapter 5. On the Inequalities depending on the Squares and Products of the Excentricities and Inclinations of the Orbits.


Chapter 7. On the Duration of the Eclipses of the Satellites.


Chapter 15. On the Duration of the Eclipses of the Satellites, containing the comparison with observation.


Chapter 17. On the Satellites of Uranus.

BOOK IX. Theory of Comets.

Chapter 1. Theory of the Perturbation of Comets.
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Chapter 5. On the Motion of the Satellites of Jupiter; Historical Notice.


Second Supplement (the first and the tenth book).

An Extended Theory of Capillary Attraction (no date).


We must neither expect a complete sketch of Laplace's character, both political and scientific, and it is now our more pleasing task to say a few words on the Mécanique Céleste, as a whole. We might dwell upon the great discoveries, such as those of the long inequality of Saturn and Jupiter, the periodic or secular inequality of the mass of the earth, which is more accurately than any thing else given, the explanation of the peculiarities in the motion of Jupiter's satellites, with a long train of similar achievements. But this, though the most common method of describing the character of a philosopher, is not the sort of description which should be given of the Mécanique Céleste. Its bulk is about 2000 quarto pages; and, owing to the omission of the whole of the thirteenth part, which was originally intended to be written, there have been written the same number, but have probably reached ten thousand pages. If all this work had been collected by one man, even from the writings of others, we should have called him the Delambre of the theory; and should have reserved this name for their extent, their faithful representation of the state of the science at a particular time, and the diligence displayed in the undertaking. When to the preceding, which is forgotten in the splendour of some of the results, we add, that to Laplace's first, and now his own, he was a great benefactor, and that by the employment of his own resources in a manner which takes all the originality and power of the investigator, and the arrangement and combination of the whole, we may begin to see how he has earned his fame.

There is moreover another consideration which applies to the author of the Mécanique Céleste, more than to any other except that of the Principia. When an investigator proceeds, after another, upon connected subjects, we may feel admiration of his skill and sagacity, but we can never know whether he followed a route with the determination of overcoming a specific difficulty, or not. He tells us where he succeeded, but not whether he failed. It is otherwise when an original writer attempts a complete system, at every part of which he must work, and must show the world either a result or a blank. It is seldom that Laplace leaves off at the same point with his predecessor; and if, in the development of that subject, he will receive the pre-eminence on every single point. Had he consulted his own glory he would have taken care always to note exactly that part of his own work in which he had a forerunner; and it is not until this shall have been well and precisely done, and distinctly defended and received by us, that we can justly appreciate his mathematical style is utterly destitute of the symmetry of that of Lagrange and the simplicity of that of Euler; and he is frequently even clumsy. He pays little attention to extreme correctness of form. Upon fundamental principles, whether of mechanics or analysis, he frequently needs a commentator, at least for the student.

Laplace explained his discoveries in a work entitled 'Exposition du Systéme du Monde,' of which the fifth edition bears the title 'A System of the World.' The account is short, and a clearness of a superior kind, somewhat too egotistical, and partaking of the disposition to suppression already noticed. A similar companion to the Theory of Probabilities appeared as a preface to this work, and was published separately (fifth edition, 1822), under the title of 'Essai Philosophique sur les Probabilités.' A little treatise, published in 1821, called 'Précis de l'Histoire de l'Astronomie,' afterwards was made the fifth book of the fifth edition of the 'Mécanique Céleste.' Two or more elementary branches of mathematics are in the 'Leccons de l'École Normale.'

Of the 'Thése des Probabilités' we must speak precisely as of the 'Mécanique Céleste,' and perhaps that the latter is the part in which more original power is displayed than in the former. The subject being somewhat isolated, its results are little known; they have however been extensively applied to astronomy, both by Laplace himself, and particularly by the German writers.

The 'Mécanique Céleste' was partly translated into English by a learned American writer, Dr. Bowditch, whose recent death, though it has prevented his superintending the English work, has made it ready for press. The well known work of Mrs. Somerville is a selection from the 'Mécanique Céleste,' involving all the fundamental parts of the theory of gravitation. The 'Systéme du Monde' was translated by the late astronomer royal, Sir J. F. W. Herschel. The third book, and the first part of the fourth, by Dr. Pemberton, entitled 'Cabinet Cyclopedia.' The forthcoming numbers of the 'Encyclopaedia Britannica' will contain an article on Probabilities, in which the same results of analysis are treated.

It is sometimes stated by English writers that Laplace was an atheist. We have attentively examined every passage which has been brought in proof of this assertion, and we can find nothing which makes either for or against such a supposition. It is easy, with an hypothesis, to show that any system of the Universe is possible; but it seems that a person reading Laplace for philosophical information would meet with nothing which could either raise or solve a question as to the writer's opinion of the fundamental point of his system, as far as the Newtonian theory of gravitation is concerned.

We have, however, been rather at a loss how the solar system might possibly be produced from the cooling of a mass of fluid or vapour called atheistic because it attempts to ascend one step in the chain of causes, the Principia of Newton was designated by the same term, and for a similar reason. What Laplace's opinion was, however, we do not know; and it is not fair that a writer, who, at a time of perfect license on such matters, obstinately avoided entering on the subject, should be stated as of one opinion or the other, upon the authority of a few passages of which it can only be said (as it could equally be said of most mathematical works) that they have been written by a person of any religious or political sentiments whatever.

LAPLAND, the country of the Laplanders, comprehends the northern part of the Swedish peninsula. It is difficult to assign its boundaries. It seems that in the twelfth and thirteenth centuries all its country north of 67° N. lat. as far as Cape North (now North Cape (71° 15' N. and 71° 9'), between the White Sea and the Barents, are at present appreciated entirely in possession of the people called Laplanders, and independent of any of the neighbouring kingdoms, but this along the northern coast of Norway the inhabitants of Torric origin advanced rapidly towards the north, probably attracted by the rich cod-fishery between the Lofoten Island. Being settled there, and having introduced agriculture with various success, they acquired great influence among the natives, and in the thirteenth century the Laplanders were to be reckoned. The submission was rather nominal than real, the neighbouring nations, the Swedes and Russians, also settled in those districts where were nearest to their dominions. In consequence of these settlements and changes introduced by more recent political events, Lapland is divided between Norway, Sweden, and Russia, and the settlers from these countries are now much more numerous than the original Laplanders. Lapland probably comprises an area of about 1,200,000 square miles, of which about one-third is comprised within the boundaries of the Swedish empire. It is divided from Swedish Lapland by the river Muonie, affluent of the Torca Elf, and by the last-mentioned river, and from that part of Lapland which is annexed to Norway by the river Tana, but perches along the coast to the east of the mouth of the Tana Elf, and extends as far as the Bugge Fiord, also belongs to Norway. Russian Lapland is divided between the two governments of Archangel and Uleabor; in the former it constitutes the district of
Kola, and in the second that of Tornio. Swedish Lapland is divided between the two districts (lans) of Pets and Ume, to the north of the country which belongs to Norway is called Finmarken.

Along the Norwegian coast lies the mountain-range of the Kilen, which rises, on the very shores of the sea, with an extremely steep ascent, so that at a distance of a few miles it seems as if the earth were split, and the country, which is 20 miles distant from the highest part, exhibits only high hills. The highest portion of the range is chiefly composed of bare rocks, and it is only in a few places that it is covered with grass and low bushes; but stunted birch and some evergreen trees grow between which are narrow valleys, partially occupied by large lakes and partly by forest trees, advance to a considerable distance from the principal range, and leave a more level tract of country. Both of Bohnia, which is 20 and 30 miles across. The most hilly part is south of the Lules Elm, north of which the country extends in rocky plains with a scanty vegetation, and mostly covered with swamps, at least during the greatest part of the year. The surface of the country is divided by many ravines or rivers, and is more particularly along the coast of Norway. Wilds abound, especially in Russian Lapland; and the Swedish is a naturalist Wallace, who has been in several parts of the country, to which would be still more sterile without them. The forests, which cover a considerable part of the surface of the country, consist mostly of birch, fir, pine, alder, and aspen. The soil, which is overgrown by these forests, is chiefly morass or swamp (Lachen, cótov), which also covers the lower elevations of the higher portion of the Kilen range, and which the numerous herds of reindeer feed on.

For a more particular account of the Laplanders, see Sweden and Norway. (Bech's Travels; Schubert's Reise durch Schonen, Norwegen, Lappland, Finnland, und Ingermanland.)

LA PLATA. [PLATA, I.A.]

LAPLYSIA. [TECHNEBRACHIA.]

LAPSE. [LACE.

LAPWING. [PLOVERS.]

LAR, LARISTAN. [PERSE.

LARACH. [MAROC.

LAR VENY (laticrassínus, Latin; larcin, French) is the legal term for theft.

This crime was formerly divided into grand and petty larceny, distinguished by the value of the property taken at one and the same time. It was grand larceny where the value was more than twelve pence, but when the value did not exceed that amount: a distinction referable to as many shillings of the present currency. At common law the punishment of petty larceny was whipping of grand larceny, of imprisonment; but if the offender were in a situation to claim benefit of clergy, of which mode of escaping punishment neither women, nor men who were unable to read, or who had been twice married, or who had married widows, or who, not being actually clergymen, had before taken the benefit of clergy, could avail themselves. [Benefit of Clergy.] By 4 George I, c. 11, grand and petty larceny were made punishable by transportation.

By 7 & 8 George IV, c. 28, the distinction between grand and petty larceny is abolished; and larcenies are now distinguished as simple or compound, sometimes called mixed, larcenies.

Larceny at common law is committed by wrongfully taking against the will of the owner, and carrying away the goods of another, with the fraudulent and felonious intent wholly to deprive him of his property therein.

First, there must be a wrongful taking against the will of the owner, which taking may be either actual or constructive. Actual taking against the will of the owner is where goods are taken directly either out of the possession of their absolute owner, or out of the possession of a bailee, or temporary owner. Constructive taking against the will of the owner is either where the possession of goods is obtained from the owner with a preconceived intention on the part of the person to steal them, in which case the original taking is felonious, or where the owner, without divesting himself of the legal possession of the goods, allows the hands of a person who afterwards converts them to his own use or to some other purpose inconsistent with the continu
ance of the owner's property therein, in which case such conversion constitutes the felonious taking. The doctrine of constructive taking has given rise to many nice distinctions. Generally speaking, there can be no larceny where the posses- sion is voluntarily parted with. Thus if I lend another my horse and he steals it, he is not a larceny, but a civil wrong, for which the only remedy is by action. But where the possession of a horse is obtained on the pretense only of borrowing, and then stolen, or, if the owner, sells him, such parting with the possession by the owner will not diminish the criminal responsibility of the taker. Larceny is not committed when the possession is obtained in the first instance bona fide without any fraudulent intention. Thus where A saves goods from fire and takes the same, having at the time an honest intention of preserving them for the owner, although the next morning A conceals the goods and denies having had the possession of them, it is a breach of trust, and no felony. Wherever however the absolute or temp- orary owner sells or delivers goods to another, but retains the beneficial possession of them, a conversion of the goods by such bailee to his own use will be larceny. A servant entrusted with his master's goods, a shepherd with sheep, &c., who embezzles them, is guilty of larceny at common law, because in such cases the possession of the servant, &c., is in law the possession of the master. If the owner is, by whatever means, induced willingly to part with his prop- erty in the goods, and not merely with the possession of them, he does not amount to larceny; as where A's possession of goods is obtained under colour of a purchase actually completed, although with an intention of running off without paying for them. But where the owner of a horse has left his horse to B, and B takes the horse by a person or mounts and rides off with the horse, it is larceny, as the owner never parted with the property, nor indeed with the possession, for goods in the presence of the owner are in law considered as in his possession, though used by another. Where A goes to B's shop and in the name of C, and asks for a hat which C has ordered, and it is delivered to A, who converts it to his own use, it is no larceny, because by such delivery B parted with the property in the hat. But if upon A's asking for the hat, B delivered two hats for C to choose from, and A had converted both or either to his own use, the offence would have been larceny, be- cause B parted with the possession only, and not with the property, as the right of property would have remained in B until C had made his election, and the bare possession was obtained fraudulently.

Secondly, there must not only be a taking, but also a carrying away, technically called asporation, to constitute which the goods stolen must be actually removed from the place where they were, before occupation of the thief's residence, although a distance is a sufficient asporation; as if a thief be detected whilst leading a horse out of a field. So where A goes to an inn, and says to the ostler, 'Bring out my horse,' B's horse and A's horse is led out; but before A can mount, B comes up. So where a guest, with intent to steal goods out of an inn, removes them down stairs; or a thief, intending to steal plate, takes it out of a chest and lays it upon the floor, or intending to steal a cask from a waggon, removes it from one end of the waggon to the other. But though there must be an actual removal of every part from its previous position, it is not necessary that each portion of the article stolen should be removed from the space which was previ- ously occupied by other portions of that article. Thus where A in raising a bag from the bottom of a coach-boot removes each part of the bag from the space which that specific part occupied, though the whole bag be not re- moved from every portion of the space which the bag filled in that boot, the asporation is complete. So where A has drawn a book about an inch above the top of B's pocket, B puts up his hand, and A drops the book and it falls on B's pocket, it is larceny. So where a package is, for the purpose of cutting it oiled and garding at the contents, merely set on end 'in the place where it had lain, and the thief is disturbed before he has effected his purpose, the larceny is complete. But where a severed part of the thing before the actual control over the article, the asporation is not complete until such severance is effected; as where goods in a shop are fastened by a string to the counter, or a purse is entan- gled with keys in the owner's pocket.

Thirdly, the thing taken must be goods; and at common law larceny could be committed only in respect of personal goods. Things real, or things annexed to the soil, technically called the realty, or which are connected with the soil and freethold, and which therefore can be broken, but not removed, to the use of the realty, were not subject to larceny at common law. This rule was observed so strictly, that larceny could not be committed by stealing title deeds, nor by stealing growing corn, grass, trees, &c., unless evidence existed of their being separately available by action or demand, as deeds, bonds, bills, notes, and other securites for money, &c.

The inconvenience arising from these rules, which are adopted by a very different state of society, is remedied by several statutes passed during the last and the present century.

The objection founded upon the connection of the thing stolen with the property is removed by several provisions of 7 and 8 Geo. IV., c. 39. That statute, sec. 33, makes it an offense to steal, to embezzle, or to appropriate any written or printed papers or parchments, being evidence of title to real estate, a misdemeanor punishable at the discretion of the court by transportation for seven years, or by fine or imprisonment, or both. It further establishes a new rule, by which it is deemed a felony to steal, break up, or destroy or damage, with intent to steal, any tree, sapling, or shrub, or any underwood growing in a park, pleasure-ground, garden, orchard, or avenue, or in ground adjoining any rivers, brooks, ditches, or ponds, the value of the article or articles stolen, or the amount of the injury done, exceed one pound, he shall be guilty of felony, and liable to be punished as for simple larceny: so if the trees, &c., be growing elsewhere, and the value or amount of injury or damage be less than fifty pounds, he shall be guilty of theft, or of embezzlement, every such offender, being convicted as a justice of the peace, shall, for the first offense, forfeit, and over and above the value of the articles stolen or the amount of the injury done, a sum not exceeding five pounds; and any person so convicted who is detained in the custody of any of the said offenses is to be imprisoned and kept to hard labour for a term not exceeding twelve months; and if the second conviction take place before two justices, they may order the offender, if a male, to be whipped; and if any person so convicted shall afterwards commit any of the said offenses, such offender is to be deemed guilty of felony, and is liable to be punished in the same manner as in the case of simple larceny. It further enacts (s. 42) that any tree, sapling, or shrub, or any underwood, wherein the value of the articles stolen or the injury done be less than twenty pounds, shall be deemed a justice of the peace, and the person so convicted shall afterwards commit any of the said offenses, the offense shall be deemed felony, and shall be punishable as in cases of simple larceny.

By the same statute (s. 44) it is made felony, punishable as in cases of simple larceny, to steal or rip, embezzle, or with intent to steal, glass or wood-work belonging to any building, or lead, iron, copper, brass, or other metal, or any utensil or fixture fixed in or to any building, or anything made or constituting private property, or for a fence to any dwelling-house, fence, wall, barn, arbor, or any square, street, or other place dedicated to public use or ornament; and by s. 37 it is made a felony, punishable as in cases of simple larceny, to steal, or with intent to steal, either any metal, or any mone- y, or moneys, or any wad, black cash, or black lead, or any coal or cannel coal, from any mine, bed, or vein thereof. The stealing of any chattel or fixture let to be used with any
house or lodging is by the same statute (s. 45) made felony, punishable as simple larceny.

In the prosecution, the same statute enacts (s. 5) that if any person shall steal any tally, order, or other security, entitling or evidencing title to any share or interest in any public stock or fund, or in any fund of any body corporate, company, or society, or to any deposit in any bank, express and certified bond, note, warrant, order, or other security for money, or shall steal any warrant or order for the delivery or transfer of goods or valuable things, the offence shall be deemed felony at common law and in the same degree, and punishable in the same manner as the stealing of any chattel of like value with the share, interest, or deposit to which the security so stolen may relate, or with the money due on the security so stolen or secured thereby, or with the value of the goods or other valuable thing by the said warrant or order. It also enacts (s. 21) that if any person shall steal, or shall, for any fraudulent purpose, take from its place of deposit or from any person having lawful custody thereof, or shall unlawfully or maliciously obliterate, irre- move, or destroy any record, writ, return, panel, process, interrogatory, deposition, affidavit, rule, order, warrant of attorney, or any original document belonging to any court record, or relating to any matter, civil or criminal, begun, pending, or already discontinued in solitoy court, or any bill, aver- sion, interrogatory, deposition, affidavit, order, or decree, or any original document belonging to any court of equity relating to any cause or matter in any such court, the offence shall be a misdemeanor, and subject at the discretion of the court to the exercise of any power by the court, as for the court shall award. And by s. 22 the stealing, or, for any fraudulent purpose, destroying or concealing a will or other testamentary instrument, is a misdemeanor punishable by transportation for seven years, or by fine or imprisonment, or both.

The Post-Office Act, 7 Will. IV. and 1 Vict., c. 36, s. 29, makes the stealing and embezzling of post letters, letter-carriers, or other post-officer's luggage, to commit felony, according to the nature of the offence and the existence or non-existence of a confidential character in the guilty party. [Post-Office.]

Fourthly, the goods taken should generally be the goods of another person.

If a man take his own goods supposing them to be the goods of another, no larceny is committed. It is otherwise where the taking is for the purpose of fraudulently charging mother with the loss; as if a man steal his own goods for the purpose of charging his wife, or any other, with the loss committed by himself. If a wife take and convert to her own use the goods of her husband, they being but in person as law, it does not constitute larceny.

When a cow is stolen and is killed, what the personal chattel cannot commit larceny respecting such chattel as against his co-tenant. But if such chattel be bailed or de- livered to the care or keeping of a third party for safe custody, and the effect of the taking be to charge such bailee, amounts to larceny.

The converting of found goods by the finder to his own use does not amount to larceny, unless at the time of the conversion he knows, or has the means of knowing, who is the real owner.

A larceny may be committed of things which are not the object of property, as a human corpse, or of things the use of which is common to all mankind, as running water, wild animals in their natural liberty, &c. It is otherwise of things which are dead, or are reclaimed or confirned, and which are used to man as food or otherwise. But the dealing of dogs, cats, and ferrets, though tame and valuable, and of bears, monkeys, &c., though reclaimed or confirmed, does not amount to larceny. But by 7 and 8 George IV., s. 39, theft, or stealing any dog, cat, or other animal, second, third, or fourth, is made larceny, punishable with either imprisonment or death; and the same is also made larceny, punishable with either imprisonment or death, second, third, or fourth, of stealing live cattle, or stealing any dead cattle, or stealing any live sheep, or stealing any dead sheep, or stealing any live goats, or stealing any dead goats, or stealing any live swine, or stealing any dead swine, or stealing any live poultry, or stealing any dead poultry, or stealing any live game, or stealing any dead game.

Stealing oysters or oyster brood from a marked-out or known oyster bed, laying, or fishery, is made larceny by 7 & 8 Geo. IV., c. 36.

Fifthly, there must be an intent wholly to deprive the owner of the goods stolen of his property therein, which intent constitutes the fraudulent and felonious character of the act. The most common motive for a theft, and the ordinary mode of depriving the owner of his property, is, to steal the thing stolen, or the conversion of it to the use of the taker; and Blackstone and others have considered that such conversion to the use of the thief, or some benefit to be derived by him to the exclusion of the owner, is essential to the completion of the offence, applicable to the definition of larceny in the civil law, & presentatio rei fraudulosa lucrui faciendi causa. But it appears to be now settled that a wrongful destruction of the goods taken, where- by the owner is wholly deprived of his property therein, is sufficient to constitute this offence, although no benefit is sought to be derived to the taker.

Persons convicted of simple larceny are, by the 7 & 8 George IV., c. 29, made liable, at the discretion of the court, to be transported for seven years, or to be imprisoned for a term not exceeding two years, or, if males, to public whipping in addition to imprisonment; and the court is empowered to sentence the offenders to be imprisoned and kept to hard labour, and also to direct that they shall be transported as to the court shall seem meet. 7 Will. IV. & 1 Vict., c. 96, s. 5, re- stricts the courts from directing that any offender shall be kept in solitary confinement, for any longer period than one month at a time, or than three months in the space of one year; and any person convicted is a person already under sentence for another crime, the court is emp- lowed by 7 & 8 George IV., c. 28, s. 10, to award im- prisonment for the subsequent offence, to commence at the expiration of the imprisonment to which such person has been previously sentenced; and when such sentence is already under sentence either of imprisonment or of transpor- tation, the court, if empowered to pass sentence of transporta- tion, may award such sentence for the subsequent offence, to commence at the expiration of the imprisonment or transportation to which such person has been previously sentenced.

As cattle are necessarily left in fields and upon commons and wastes, without any person to attend them, the legisla- ture has interferred to protect property of this description by heavier punishments than those inflicted in other cases of larceny. Cattle-stealers were by several statutes ex- cluded from benefit of clergy; and upon the abolition of the distinction between capital and clergymen felonies by 7 & 8 George IV., c. 15, a man cannot be held to have been guilty of theft, or filly, or any bull, cow, ox, heifer, or calf, or any ram, ewe, sheep, or lamb, or wilfully killing such cattle with intent to steal the carcases or skin or any part of the carcasse or skin of such cattle, is a make a felony punishable by transportation for seven years, or imprisonment for not exceeding thirty years. But now under 7 Will. IV. & 1 Vict., c. 99, the punish- ment of this offence is transportation for not more than fifteen or less than ten years, or imprisonment not exceed- ing three years.

A person guilty of larceny may be indicted for the offence at the suit of the crown [Indictment]; and he might for- merly have been appealed or accused in a private action brought by the party injured [Appra]l to punish the offender and obtain restitution. The appeal is now taken away; but the party injured, and indeed any other person, may prefer a bill of indictment without the leave or even the knowledge of the crown or its officers. But the crown may interpose by entering a nolle prosequi before judgment, or by pardoning the offender afterwards; whereas in an appeal from the crown the judgment is conclusive and cannot be reversed or altered, and no appeal can be made from a judgement to the appellee, whose life after conviction and judgment was wholly at the mercy of the appellee.

II. Compound larceny is where the crime of larceny is accompanied by circumstances which the legislature has considered as aggravating the offence and requiring an in- crease of punishment.

Under 7 & 8 George IV., c. 29, s. 6, stealing from the person of another, or in the company with another, or stealing by transportation for life or not less than seven years, or imprisonment for not more than four years with or without whipping. To constitute this offence the thing stolen must be completely removed from the person of the owner, though such complete removal is not necessary.
in cases of simple larceny. It is no answer to the charge, that such force or fear was used as would make the offence amount to robbery. [Roma.]}

Breaking and entering any church or chapel (by which is meant a chapel in connexion with the Established religion) and stealing therein any chappel, or breaking out any chappel, whereby any chappel therein was made a capital felony by 7 & 8 George IV., c. 29, s. 10, but the punishment was mitigated to transportation for life or for not less than seven years, or imprisonment not exceeding three years with or without hard labour and solitary confinement, by 6 & 7 William IV., c. 4.

By 7 & 8 George IV., c. 29, s. 12, breaking and entering a dwelling-house and stealing therein any chattel, money, or valuable security to any value whatever, or stealing in a dwelling-house any chattel, money, or valuable security to the value of 5l. without a breaking and entering, was made a capital felony. The offence is now, under 7 Will. IV. & 1 Vict., c. 90, a felony punishable by transportation for not more than fifteen or less than ten years, or imprisonment not exceeding three years; and the same punishment is provided in cases where any such property is stolen in a dwelling-house, and any one being therein is by menace or threat put in bodily fear; and also in cases of breaking and entering three years with or without hard labour, and solitary confinement, by 6 & 7 William IV., c. 4.

The same punishment is affixed to the offence of breaking and entering a shop, warehouse, or counting-house, and stealing therein any chattel, money, or valuable security to any value whatever, or stealing in a shop, warehouse, or counting-house any chattel, money, or valuable security to the value of 10l. without a breaking and entering, or to the offence of stealing, to the value of 10s., any goods or article of silk, woolen, linen or cotton, whilst laid, placed or exposed during any process of manufacture in a building, field, or other place where such goods are being made or finished, and to the offence of stealing goods in a vessel, barge, or boat in any port or any navigable river or canal, or any creek belonging thereto, or from a dock, wharf, or quay adjacent thereto; and to the offence of plundering or stealing any part of a vessel in distress, or written off by the Court, or in distress, or written off by the Court, or imprisoned, or any goods, in alienation, in such a vessel belonging to such vessel. (For the Roman law of theft see ROBBERY.)

**LARCH TREE.** [Ante Abies Larix.]

*Ernst Peter Henri.*—At Dijon in 1726, applied himself especially to the study of the Greek classics, and made himself known by several translations from them, the principal of which is his translation of Herodotus, with a commentary, Paris, 1786, a useful book, which was re-published in an improved edition, 9 vols. 8vo., 1803.

In 1774 Larcher published a "Memoir on the Goddess Venus," which obtained the prize of the Academy of Inscriptions, of which body he afterwards became a member. He had a controversy with Voltaire, in consequence of some strictures which Voltaire had made on Voltaire's 'Éloge de la République,' and Voltaire replied in his usual sarcastic vein in the "Défense de mon Oeuvres," and Larcher answered him in the "Reponse a la Défense de mon Oeuvres." After the Revolution, Larcher was made a member, or "abbas," of the National Institute.

He died at Paris, in December, 1812.

Larcher's translation of Herodotus, which is his chief work, has the merit of being generally correct, but it has no recommendations of style, and as a work of art it altogether fails to represent the beautiful simplicity of the original. The commentary on the text is still useful, though it is far from containing all that might now be added in illustration of Herodotus. Larcher also translated the "Abbas" of Kockhorn.

**LARD.** [Fac.]

**LARDNER, Nathaniel, D.D.,** born 1684, died 1768, devoted a long life to the prosecution of theological inquiry, to the exclusion of attention to almost any other subject. The results which this communicated to the world, from time to time to show at once the assiduity with which he laboured in this department, and the ability which he possessed to conduct his learned researches to a successful issue.

Dr. Lardner was an English Dissenting Minister, belonging to the denomination called Presbyterian. In early life he was a pupil of Dr. Joshua Oldfield, a minister of eminence in that denomination, but he took a course which made his views the opposite of those of his master, being engaged from the time of his youth to prosecute his studies. He spent more than three years at Utrecht, where he studied under Gravius and Burman, and was then some time at Leyden. He returned to England in 1703, and continued prosecuting his theological studies with a view to the ministry; but it was not till he was twenty-five that he began to preach.

The course of his after-life is soon described. He became private chaplain in the family of Lady Trefy, who died a widow, and was a lecturer on the meeting-chapel in the Old Jewry. He was not acceptable as a preacher owing to the want of power to modulate his voice, arising from the imperfection of his sense of hearing.

The Dissenters have no means of placing their scholars in any situation in which they might be enabled to procure those studies, the results of which are of the most essential benefit to the great interests which they hold peculiarly dear; so that Dr. Lardner was thrown for the most part upon his own resources while engaged in those profound inquiries which engaged his attention, and which made him one of our most eminent theological scholars of his age and country. His 'Credibility of the Gospel History,' the 'Supplement' to it, and his 'Jewish and Heathen Testimonies,' have received the testimony of the most distinguished persons, as constituting, in the most rational and unanswerable defence of Christianity that has yet been prepared. These are his great works, but there are beside them many other treatises in which he has brought his stores of learning to bear on questions which he regarded with the deepest interest. The collection of these his minor publications is his 'Letter on the Logos,' in which it distinctly appears that he was of the Unitarian or Socinian School.

The direction of his works is that by Dr. Andrew Kipps; but it is no mean proof of the estimation in which they are held, that large as they are when collected together, the booksellers not long ago ventured on a republication of them.

LARES, among the Romans, were household gods; the guardians of their hearths and families. There is much dispute among the etymology of this term. Aupelius derives it from *Lar, familiaris.* Ovid speak of the Lares as the offspring of Mercury and Larn. From a passage in Virgil, these names are used of others of the Romans were the "mumes of their ancestors. According to Ovid ("Fasti," v., 146) there were generally two of them, who were sometimes represented with a dog at their feet. Aulus Gellius clothed in the skin of a dog. They usually held a cornucopia in their hands as a symbol of good housekeeping. The festival of the Lares was celebrated on the kalends of May (Ibid., v., 129) when they were crowned with garlands and sacrifices were offered to them. Citizen records an inscription, 'LARVITIS PRO SALUTE ET INCONVI- TATE DOMVS Q. SERTONI.' There were not only *Lares domesti- cici et familiares, but Lares urbani, rurales, viscer, computales, marini, &c.*

**LARGHETTO (Italian),** a musical term, a diminutive of LARGE, a movement, or measure, or part of a movement, and less so than LARGO.

LARGO, in music (Ital. adverb, largely, widely), is the second in order of the five classes into which musical movement is divided (AVANT), and signifies slowly.

Larrieur was the town in the parish of Largy and county of Antrim, 65 miles south-west by west from Edinburgh. It is pleasantly situated on the shore of the Frith of Clyde, immediately opposite to the island of Bute, and there are few situations which exhibit more romantic scenery. The church is of some antiquity, and the living, which is in the presbytery of Irvine and synod of Glasgow and Ayr, is in the gift of the Earl of Eglinton. The parochial school is well attended, and the master's salary is 20l., exclusive of stock. The market-day is Thursday, and the fair is held the beginning of February, monthly in February, March, and October. The population of the town and suburbs in 1831 was 2945.

**LARIDÆ, the name given by Leach to the family of birds vernacularly known as Sea Gulls, Sea Marmots, or Gulls, belonging to Mr. Vigors's fifth order Natatoræ.**

Williby, in his "Ornithology," under his section (v.) "Of Sea-Gull, called in Linnean Larii," says in his first chapter of that section ("Of Gulls in General") that "Gulls are on the wing, with an incurved and narrow bill, a pointed bill, a little crooked at the end; oblong nostrils; long and strong wings; short legs; small feet (for they do not swim much); a light body, but invested with many and thick feathers, the fat that is sticking to the skin (as in other birds); much upon the wing, very clamorous, hungry, and pugnacious."

"These we divide into two kinds: 1st, the greater, which
have tails composed of feathers of equal length, and an angular prominence or knob on the lower chap of the bill under its beak in order to strengthen it, that may more strongly hold fishes; and, the lesser, which have a forked tail, and no such knob on the bill (or, he adds in a marginal note, but a very small one). Both kinds may be divided into pied or parti-colored, and grey or brown.

Willughby places the Gulls between the 'Doveckers, or Looms, called in Latin Columby,' and the 'whole-footed birds of their kind,' as being the two extremes of which are 'the goose-kind,' commencing with the Swan.

Ray's Synopsis places the Gulls between the Columby and the 'Aves Pamelipes rostro in extremo adunco, non serrato,' Aust Diomedes (Albatross). Shearwater, Puffinus, &c., and describes them as having a bill with a very narrow, sharp, but not hooked (adunco) bill, long-winged, and much given to flight (volatilus), called Larus, in English Guls or Sea-Mews, and in some places Sea-Cubs,' with the following definition: — 'The marks of Gulls are a strong, oblong, narrow, and acute bill, which is a little curved at the extremity, but in the smaller species straighter; nostril oblong; wings oblong and strong; feet small; body very light, clothed with many and thick feathers; and to be clamorous, much on the wing, hungry, and piscivorous.'

He divides the Gulls into three sections: viz.,

1. The Three-toed Gulls, 'Lari triactei, seu postico digitol

2. Four-toed Gulls, 'Lari tetractei, seu postico digitol donati'; and

3. Fork-tailed Gulls, 'Lari minores, caudæ foreipatib' (Terns, &c.)

Brisson placed in his twenty-third order (consisting of birds with four toes, the three anterior joined together by membranes and the posterior separate, and with a toothless bill), the Gulls, Petrels, Puffins, Terns, Sea-simmer or Rhynchosula (Rhynchos, Linn.), &c.

The second division of the third order (Anseres) of Linnaeus consists of those web-footed water-fowl which have an edentulous bill, and the following are the genera of that order: Rhynchos, Diomedes, Ate, Procellaria, Pelecanus, Larus, &c. Briston.

Lacépède's second subclass of birds consists of those which have the lower part of the leg denuded of feathers, or many toes united by a large membrane. The first division of this subclass comprises those birds which have three anterior toes, and one toe or none behind. In the first subdivision, the first order (the twenty-second reckoning from the beginning), consisting of palmiped water-birds with a hooked beak, we find Diomedes and Procellaria, among other genera. I have already noticed from the beginning) are placed, also among other genera, Rhynchos.

In the fourth (twenty-fifth reckoning from the beginning), with a straight and slender bill, we have the genus Sterna; and, in the next but one (twenty-seventh), with a hooked beak, we have the genus Larus, the inter-

Vingren genus being Recurvirostra (Avoset).

M. Duméril's third family (twenty-second in the series), consists of the long-winged Palmipedes, and includes Rhynchos, the Terns, the Avosets, the Petrels, the Albatrosses, and the Sea-Mews.

In the method of M. Meyer, we find the first suborder (Conyntróstra) of his eleventh order, Natatoræ, comprising, among other genera, those of Sterna, Larus, and Leptirides.

Of the Petrels; while those reckoning from the beginning), consisting of palmiped water-birds with a hooked beak, we find Diomedes and Procellaria, among other genera. I have already noticed from the beginning) are placed, also among other genera, Rhynchos.

In the fourth (twenty-fifth reckoning from the beginning), with a straight and slender bill, we have the genus Sterna; and, in the next but one (twenty-seventh), with a hooked beak, we have the genus Larus, the inter-

Vingren genus being Recurvirostra (Avoset).

M. Duméril's third family (twenty-second in the series), consists of the long-winged Palmipedes, and includes Rhynchos, the Terns, the Avosets, the Petrels, the Albatrosses, Gulls, Terns, and Rhynchos.

The fourth family (Palatians) of M. Vieillot's first tribe (Teleopes) of the order Natatoræ consists of Stercoraria, the Gulls, Terns, and Rhynchos.

Tennantin places the whole of the members of the Palmipedes in one order.

M. De Blainville's Natatoræ consists of the Macropteres (Guillaux), the Sphyphorhiniæ (Peteles), the Cryptorhiniæ (Petrels), and the Coelumbæ. In his method as developed by M. Laffranquy this third order of Petrels (Procellaria) are placed in his first subclass or Normal Birds.

Mr. Vigors (Natural Affinities that connect the Orders and Families of Birds, 1 Linn. Trans. vol. xiv.) states that

Phaethon, a genus belonging to the immediately preceding family (Pelecanœides) bears a considerable resemblance in general appearance and habits to Sterna belonging to the succeeding family of Laridæ, the structure of their foot alone effecting a separation between them. Even here, however, he remarks, the distinction can exist between the feet of the two families; the web that unites the toes of the Tropic, as well as of the Frigate Bird, being but half the size of that of the Pelecanœides in general; and thus their foot alone serves a connexion with that of the Terns, where the same membrane is seen. We thus, continues Mr. Vigors, 'enter the family of Larideœ by means of Sterna, with which Rhynchos, Linn., most intimately accords in habits and external characters, and it is in this family that we shall find the origin of Puffins, Linn., and of the well-known and beautiful bill. The Sterna, Aetheropus, Angico, or bill-torned of Corn. Montagu, conducts us from these genera to the groups which compose the Linnæan Laridæ, now justly subdivided into two genera, the Leptirides, &c., and Larus of authors. From this group we are led to the genera Diomedæ, Linn., and Haladromeæ, Il., which are characterised by the absence of the hind toe, by means of the species Larus tridactylus, Lath., where, though the hind toe is not absolutely deficient, as might be inferred from the specific name, there appears but the rudiment of one, or rather a stump without a nail. The last-mentioned genus, Haladromea, originally belonged to the Procellaria, Linn., and was separated from it by its triactylic foot, and even in this character however it forms a passage from Larus to the groups which compose the family Procellariæ, one of all of which are distinguished by the singular peculiarity of having no true hind toe, but a nail adhering to the tarsus in its place. We thus arrive at the Petrels, separated into several groups of the genera Sterna, Aetheropus, Aust. and Peters, &c., Puffinus, Ray, and the section denominated by M. Temminck 'Les Petrels Hormellides.' These two latter groups appear to lead us back to the Terns, or Sea-Scallows, from whence we started. The whole of this family, which corresponds with the Longipennis of M. Cuvier, is according to the peculiarities characterised by the strength and expansiveness of their wings, with the aid of which they traverse immemorial tracts of the ocean in search of their food, and support their flight among the most considerable distances from land, seldom having recourse to their powers of swimming. We may thus discern the general succession by which the characters peculiar to the order descend from the typical groups that swim and dive well and frequently, but make little use of their wings for flight, to the present groups, which are exclusively addicted to fly much, but seldom employ their powers of swimming, and never dive. The family of Larideœ may thus be observed to stand at the very extremity of the order, and it assumes, as Corre, in conjunction with the extreme groups, much of the habits of the land-birds. A portion of the group before us, the Petrels, seem even to employ their feet in their own element as if on land, walking as it were, on the surface of the waters. We have thus arrived at the formation of the last order, and have to look for its connexion with the first. This link is immediately supplied by the before-mentioned genus Pachyptila, in which the bill, broad and depressed at the base, assumes the character of that of the Anates. This is indeed a considerable approximation and interconnexion of character between the two groups. The bill of some species of Anser may be observed to become gradually less broad and more compressed, so as to bring them closely to the highest web that most resembles them, curiously equaled in extent, until in one species, the Semi-palmated Goose of Dr. Latham, figured in the supplement to his 'Synopsis,' we may observe no greater web than may be seen among many of the Sterna and Leptirides, and have to look for its connexion with the first. This link is immediately supplied by the before-mentioned genus Pachyptila, in which the bill, broad and depressed at the base, assumes the character of that of the Anates.
(Palmipes), belonging, with the Behaesi is (Glaratodes), to his second section, Aquatic Birds.

The Prince of Musignano. in his 'Tabella Analytica de' Generi' (Schedio Comparativo), makes the Longipennes the first family of his order. Tchernecki divides the family into two sections: 1. 'Narici sensa margine rilevo,' consisting of the genera Rhynchops, Sterna, Larus, and Lestriz. 2. 'Narici tubulosa,' containing the genera Procellaria and Diomede.

Mr. Swainson, in his 'Project,' makes the Palmipes (Natator) his eighth order, being the third of his second section, 'Aquatic Birds.' In the Table Methodique, at the end of his 'Man,' his fourth family of Palmipes is named Laride, and he considers the genera Sterna, Xema, Procellaria, Diomede, Hydroprogne, Pachyptila, Pusillus, and Thalassidromus. The family is arranged by M. Lesson between the Pelecanide and the Anatide, which form his last family.

Mr. Eydon, in his Catalogue of British Birds, enumerates the following genera and subgenera as constituting the family of Longipennata: Genus Procellaria, Linn.; subgenera Pusillus, Ray; Fulmarus, Stephens; Thalassidromus, Leach. Genus Laride, Temm.: Genus Larus, Linn.; subgenera Rissa, Leach; Larus, Stephens; Chroicocephalus, Eydon; Xema, Leach; Sterna, Linn.; and Anous, Leach.

Mr. Swainson, who refers to Mr. Vigors' arrangement as the probable one for the Laride, as the constituting a much more numerous family than either of the three, Columbida, Alcae (Acalae), or Pelecanidae (Pelecanidae) previously adverted to by him. The structure of the Laride, too, he considers to be more perfect in a general sense; although irregular in the formation of the beak, which is without exception; the perfection of the order, namely, the power of swimming and diving. The wings, he remarks, are very long; and the feet, although webbed, enable these birds to walk about with perfect ease, their long and slender legs; the hind toe is very small, sometimes wanting; but the legs are nearly as long as in some of the wading birds, of which he considers them to be the representatives: the bill he notices as being slender, much compressed, and as gradually bending towards the tip as it diminishes in thickness. After referring to their gregarious and omnivorous habits, their tolerable facility of swimming, their inability to dive, and their great power of flight, Mr. Swainson notices the genera in the following order, and expresses his views in the following terms:

1. 'The terns, or sea-swallows (Sterna), constitute the fissorial type; they have remarkably long wings and slender bills; the tail is forked; and the plumage generally is of a delicate pearl white, with more or less black upon the head. There are many numerous species, the two genera of both hemispheres. The extraordinary genus Rhynchops, or Skimmer, although possessing much of the general habits of the terns, is eminently distinguished by the singular form of its bill, and the upper mandible of which is considerably shorter than the lower, as if one of the lengths had been broken off: three species have been described, to which we add a fourth: they skim over the surface of the ocean with great swiftness, and scoop up small marine in sects and other animals. The true or typical gulls (Larus) are a numerous race, dispersed in every climate, and so closely resembling each other in plumage, that many of the species are even now but imperfectly understood; they bear a close resemblance in general appearance to the terns, but the bill is much wider, and the eye more pronounced; the two are much more curved towards the end: many are of large size; and all are voracious devourers of fish, and of every marine animal, dead or alive, which is cast upon the shore: they particularly abound in northern latitudes, but seem to range over the whole water of the seas. The parasitic gulls (Lestriz) are the raptorial representatives, and are almost confined to cold regions; they are known by their stronger conformation, their different shaped bill, and the rough scales upon their feet; these birds, like the frigate cormorants, derive their chief sustenance by robbing the more formidable gulls, and they pursue the largest gulls, and make them disgorge or relinquish their hard-earned game. The black-toed and the arctic gulls belong to this group, and both are occasionally seen on the northern shores of Britain. The genus Diomede includes the whole genus Larus and gulls of the albatrosses, the most powerful and bulky of the whole family; they are oceanic birds, living almost constantly out at sea, but are more particularly abundant in the Pacific Ocean: we have no examples in Britain, or indeed in Europe; the extent of their outspread wings is enormous; yet their flight, except in stormy weather, is by no means lofty: all the rapacious birds of the ocean, they are most violent in their attacks, and are almost uncontested in their prey, and their wit. The genus Haladroma comprises such of the albatrosses as have the bill more resembling that of the petrels, while they agree with the former in being destitute of a hind toe; but one or two species have as yet been clearly ascertained. The true petrels (Procellarii) in the second section of the order are: the loons are a native example of this genus in the fulmar (P. glaucis), but nearly all the rest inhabit theantarctic regions; they are continually out at sea, even in the most violent storms of the ocean; and the name of Petit Pierre is derived from their habits of walking on the water by the help of their wings. The shear-water petrels and some others have been separated under the very objectionable name of Puffinus, from the different construction of their nostrils and of the lower mandible: there is one species, the English puffin (P. Anglorum, Temn.), which appears to be confined to the northern coasts of Scotland. The genus Thalassomma. Vig., differs from the other petrels, by having the legs longer and the bill somewhat shorter: it is composed of those small birds well known to sailors by the vulgar name of Mother Cary's chickens. We may here also mention the subgenus Pachyptila, as being that form which, of all this family, shows the nearest affinity to the Procellarias. It is divided into the following genera: this: we have never yet seen, but Temminck and others consider it has an affinity with the terns. The circle of the Laride, no less than that of the natalorial order, has now been traced, and we can only regret that our limited space will not permit us from laying before the reader the very many analogies by which this arrangement is confirmed.'

In the 'Synopsis' at the end of the same volume, Mr. Swainson makes the Gulls a subfamily under the name of Laridae. With this definition, he considered the greater part of the family as confined to walking and swimming: the subfamily consists of the following genera and subgenera: Sterna, Temm., including Sterna, Linn.; Thalasses, Sw.; Photan, Linn.; Rhynchos, Linn.; and Gavia, Brisson; Larus, Linn.; Gull; Lestriz, Ill., Jager; Diomede, C. Linn., Procellaria, Diomede, Linn., Albatros; Haladroma, Ill.; Thalassidromus, Vog.; Pachyptila, Ill.; and Dromes, Paykull.

Having given a genera, sketch of the views of authors respecting this extended family, we shall here confine ourselves to the Gulls only, including in that term the genera Xema, of Leach; Larus, of Linneus; and Lestriz, of Temminck. The other groups will be noticed under their respective titles as far as our space will permit.

Xema. (Leach.)

Generic Character.—Bill short, slender, straight, laterally compressed, its tip bent down; the lower mandible somewhat angulated beneath. Nostril very slender, linear. Legs slender. Tibia naked on the lower part. Tail forked. (Gould.) Length about 14 inches.

Example, Xema ridibunda.—Larus ridibundus. Linn. Descri. In this bird the bill is short; the eye dark brown, skin naked, the eye, legs and feet, lively red; head and throat deep brown, between chocolate-colour and black; shoulders and back grey; outer edges of the quills (with the exception of that of the first, which is black) white, extremities of all but the first black, slightly tipped with white; rump, tail, and under surface white.

Winter plumage like summer plumage, saving the head, which is gradually changed from the deep colour above mentioned, to a lighter greyish yellow, the wings white, by which it has proved to be different from moulted. (Trans. Zool. Soc., vol. i., p. 13.)

Young of the Year.—Colour of bill and tarsi more obscure; top of the head and ear-coverts mottled with brown. Young of the other species the same, but the colour of the back and shoulders, each
This bird is the Mouette rieuse ou à capuchon brun of the French; Gabbiano cincirto col rostro e coli pedi rossi, Guatman, and Corvo bianco of the Italians; Laughing Gull, Peewit or Blackcap, Sea Crow and Mire Crow of the Modern British; 

Practic hendus of the Antient British.

The old birds in their complete winter plumage are, 

Larus cinereus, Gmel.; 

Larus promont. Beechst.; 

La petite mouette centrale, Briss.; 

Die alten Lachmeus im winterlichen Zustand, Leiser, &c.; 

Klare Zo-meuseen, Sepp.; 

Gabbiano Cenerino, and Gabbiano Moretta, "Stor. degl. Ucc." 

Red-legged Gull of Latham.

In the summer or nuptial plumage the bird is 

Larus rubiginosus, Linn., Gmel.; 

Mouette rieuse à pattes rouges, Briss.; 

La Mouette rieuse, Buff.; 

Schwarzhüffige Meke, Bechst., Sc.; 

Brün śmierci Meewen, Sepp.; 

Gabbiano Cenerino, and Gabbiano Moretta, "Stor. degl. Ucc." 

Black-headed Gull of Latham.

The young of the year are Sterna obscura, Brocken Tern, and 

Brown Gull of Latham.

The young in their moult and in winter are, 

Larus erythrops, Gmel.; 

La petite mouette grise, Briss.; 

Larus canescens, Bechst.; 


Brown-headed Gull and Red-legged Gull variety, Latham. (Pelt.)

Food. Habits. Reproduction. — The food of this species consists principally of insects, worms, spawn and fry, and small fishes. In habits it resembles generally the other Gulls, but it walks better. The nest, contrary to the middians of the other Gulls, which generally form their nests on the ledges of rocks near the sea, is placed, as is the case with other Xene, in low situations, such as meadows in the neighbourhood of the sea or estuaries, among the herbage on the ground. The eggs, which vary much, are generally of a deepish olive, sprinkled with large black and brown spots.

Localities. — Rivers, salt lakes, and fresh waters; in winter only on the shores of the sea; a bird of passage in Germany and France; very abundant in Holland at all seasons of the year. (Temminck.) Mr. Selby says that in Britain they are very regular in their migratory movements (for such their departure to and from the sea-coast may properly be termed), and that their return in spring may, in some cases, be calculated upon almost to a day.

Utility to Man. — Selby speaks of the eggs of this bird as being well flavoured, free from fishy taste, and, when boiled hard, as not easily distinguishable from those of the Laywang, for which they are sometimes substituted. The young, he adds, are also eaten, although not held in such high estimation as they formerly were, when great numbers were annually taken and fattened for the table, and when the Gallery (or summer resort of the species) produced. These are the See-gullets of the antient great festivals. In the House Book of the fifth earl of Northumberland, begun in 1312, these See-gullets are among the delicacies for the principal feasts or his lordship's own needs, and they were charged at one penny or three halfpence each.

In Willughby's time the price was higher. He mentions a colony of these birds "which yearly build and breed at Norbury in Staffordshire, in an island in the middle of a great pool, in the grounds of Mr. Skrimshaw, distant at least thirty miles from the sea." About the beginning of March hither they come; about the end of April they build. They lay three, four, or five eggs, of a dirty green, which are spotted with brown. The male, however, has an ounce and half weight, blunter at one end. The first down of the young is ash-coloured and spotted with black; the first feathers on the back after they are fledged are black. When the young are almost come to their full growth those emerged by the lord of the soil drive them from off the island through the pool into nets set on the banks to take them. When they have taken them they feed them with the entrails of beasts, and when they are fat sell them for four pence or five pence a-piece. They yearly take about a thousand two hundred and young ones; some may be computed what profit the lord makes of them. About the end of July they all fly away and leave the island.

Dr. Plot, in his 'Staffordshire,' adds to the history of the birds that bred in Pewit Pool, in the parish aforesaid, mentioned, that they would breed on no other land than that of the proprietor of that place, and that on the death of the owner they deserted the pool for three years, but only retired to another estate belonging to the next heir. The Doctor was fond of the marvellous.

Larus.

Generic Character. — Bill of mean length, strong, straight, cultrated, the upper mandible having the tip incurved; symphysis of the upper mandible strongly angulated, and ascending from thence to the point. Nostilis placed in the middle of the bilaterol, oblong, semicircular. Tongue pointed, with the extreme tip cleft. Wings long, acuminated. Tail, even, or slightly forked. Legs placed near the centre of the body, of mean length and strength, with the lower part of the tibia naked. Feet of four toes, three before and one behind; the three in front united by a membrane; the hind one short and free. (Gould.)

Example, Larus marinus, Linn. (Goiland Noir Mantle of the French; Great-black-backed Gull, * Gwylau ribid uwgen (Wales); Avocet.

Perfect Winter Plumage of Old Birds. — Summit of the head, region of the eyes, occiput and nape white; but all the feathers marked on their middle with a longitudinal stripe of bright brown; front, throat, neck, all the lower parts, back, and tail, pure white; top of the back, scapulars, and the whole wing of a deep black, shaded with bluish; quills towards the end of a deep black, all terminated with a large white space; secondary quills and scapulars terminated with white; bill whitish-yellow, angle of the lower mandible dull red, border of the upper mandible red; iris brilliant yellow marble with brown; feet dirty white. Length twenty-six or twenty-seven inches; females twenty-four to twenty-five inches. (Temminck.)

Willughby's specimen, figured from tip to tip of the wings distended, sixty-seven inches. (Gould.)

M. Temminck observes (1820) that in this state the species had never been described. Willughby and Montagu however had each described one (the latter author in his Dictionary (1692)) almost in the perfect state, and it is now beautifully figured in Mr. Gould's great work on 'The Birds of Europe.'

Summer or Nuptial Plumage of Old Birds. — Summit of the head, region of the eyes, occiput and nape white without any brown; naked border round the orange; rest of the plumage as in winter. In this state it is Larus marinus, Linn.; Le Goëland Noir Mantle, Buff.; Mantel Mere, Bechst.; Black-backed Gull, Latham, &c. (Temm.)

Young of the year old.—At this period the bird is Larus narius, Linn.; Larus marinus junior, Lath.; Le Goëland varé ou grisard, Buff.; and Wagel Gull, Lath. (Temm.)

The Young of the year have the head and the front of the neck greyish-white covered with numerous brown spots, which are largest on the neck; the feathers of the upper parts are blackish brown in the middle, all bordered and terminated with reddish white, which colour forus traversed bands on the sides of the wing. Tail dirty grey, striped with large zigzags and brown spots; feathers of the middle of the tail more black than white, the lateral ones black towards the end, and all bordered and terminated with whitish; quills blackish, a little white on

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* It is the Great Black and White Gull of Willughby; the provincial name is Colô.
the point; bill deep black; iris and naked circle brown; feet livid brown.

After the first year to the age of two years.—All these colours change no otherwise than that the blackish brown and yellow of the middle of the feathers occupies gradually less extent, giving place to pure white, which then surrounds all the feathers; the white begins to predominate over the grey in the lower parts, which have gradually less of the brown spots; the head becomes pure white, and the point and base of the bill assume a livid tint.

At two years, on the autumnal moult, the mantle is defined; it is then blackish, varied with irregular brown and grey spots; the white becomes pure and only sprinkled with a few spots; the tail is provided with black markings of varied forms; and the bill assumes the red spot with black in the middle.* the rest of that organ being livid white speckled with black.

At the third autumnal moult the plumage is perfect.

The young vary accordantly in having all the plumage greyish-white, with deeper spots and spots very feebly indicated; the quills whitish. Sick individuals put on these appearances, as well as the greater part of those which are kept in captivity. (Timmimick.)

Localities.—Very abundant in the Orcades and Hebrides; common in its double passage on the coasts of Holland, France, and England; lives in the north; never or very accidentally found in the interior, or on fresh waters; rather rare in the Mediterranean. (Timmimick.) Common in many parts of the north of Europe, but does not appear to extend, at least in any considerable numbers, to the extreme north latitudes, as Captain Sabine, in his 'Memoir of Greenland Birds,' states it was only once seen in Buffin's Bay, and Dr. Richardson never mentions it. Met with, but by no means plentifully, upon most of our coasts, usually alone or in pairs, and rarely in a flock of more than eight or ten together. (Selby.) America (near Philadelphia), not very rare. (C. L. Bonaparte.) United States. (Audubon.)

Food, Habits, Reproduction.—Fish, living or dead, fry, curion, &c., form the food of this species, according to Temminck, who adds, that it rarely feeds also on bivalve-shellfish. 'It is,' says Selby, 'of very voracious appetite, and preys upon all kinds of animal substance that may happen to be cast ashore. It also keeps a close watch upon the lesser gulls, whom it drives from any food they may have discovered, appropriating themselves to the whole.' Montague notices the damage it does to fishermen by severing and devouring the largest fish from their hooks, if left dry by the ebbing of the tide. Flight slow, but buoyant. Cry strong and loud, resembling the cries of the owl-cock. (Temminck.)

Larus marinus. (Great Black-backed Gull, adult, in winter plumage.)

The author last quoted says that is breeding stations in Britain are the Street-holmes and Lundy Islands in the Bristol Channel, Saulkerry in the Orkneys, the Bass Island in the Firth of Forth, or Rattray Head. Mr. Gould says that it also breeds in the marshes at the mouth of the Thames, making a nest on the ground of reeds, rushes, and flag-leaves.

Lestriss. (Cataractes, Ray? Cataracta, Alidor?)

Generic Character.—Bill moderate, hard, strong, cylindrical, very compressed, hooked at the point, the upper mandible covering with a curve, the under mandible with an angle. Nostrils approaching the point of the bill, diagonal, narrow, closed on their posterior part, and pervers. Tarst long, naked above the knee. Feet having three toes before, entirely palmated; foot very small; nails short and hooked. Tail slightly rounded, two middle feathers elongated. Wings, first quill-feather longest. (Gould.)

Example, Lestriss paradoxus.

Old of both Sexes in Perfect Plumage.—Front whitish, on the summit of the head a sort of hood of blackish-brown, terminating at the occiput; throat, region below the eyes, all the neck, the breast, the belly and abdomen, pure white; on the flanks some ash-coloured undulations; lower throat, breast, and abdomen, the violets and yellow; the wings form very deep ash-brown, graduating into blackish on the end of the quills and tail-feathers; the two long tail-feathers terminated in a loose point (on pointe très-effile); base of the bill bluish, point black; iris brown; feet deep black.

Middle Age.—All the upper parts spotted ash-brown: lower neck brighter, entirely pure yellow; interior base of the quills and the upper part only of the caudal feathers pure white, the rest blackish-brown; the two long feathers gradually diminishing towards the end, which is terminated in a very loose point; bill and feet as in individuals with perfect plumage.

In this state the bird is Larus crepidatus of the first edition of M. Temminck's 'Manuel,' Le Stercorarius of Brisson; Le Labbe où le Stercorario de Buffon, especially Pl. Enl. (Gould) more especially R. Temminck.

Young of the Year at the time of their leaving the Nest. Top of the head deep grey; sides and upper part of the neck bright grey, sprinkled with brown longitudinal spots; a black spot before the eyes; lower part of the neck, back, scapulars, wing coverts, and great coverts, all of a brownish plumage, each feather being bordered with yellowish-brown, and often with reddish; lower parts irregularly variegated with deep brown and yellowish-brown on a whitish ground; abdomen and tail-coverts striped transversely; quill and tail feathers blackish, white at their base and internal bars, all termed with white; tail rounded only; base of the bill yellowish-green, black towards the point; tail bluish-ash; base of the toes and membranes white, the rest black; posterior portion of the toes white. (Temminck.)

In this state M. Temminck considers the bird to be Larus crepidatus, Gmelin; Cataracta (Catharacta) Cepphus, Brunnich; Le Labbe ou Stercorario of authors; Labbe à queue, Cuv.; and Black-ted Gull of Latham and Pennant.

Mr. Gould, whose figure we have copied, says that he believes the bird in question to be the true paraxius of Linnaeus, Buffon, and Temminck; and although Mr. Gould thinks it probable that the species bears plumage similar to those of Lestriss Richardmoni, he is by no means able, from his own knowledge, to state this to be the case, as in all the specimens which he has opportunities of examining the markings were coarse, and decided, and the birds exhibiting a well-defined, dark-coated spot on the head, light under parts, and very long middle tail-feathers.

Localities.—Shores of the Baltic, Norway, and Sweden; spreads itself habitually in the interior on lakes and rivers; of periodical or accidental passage in Germany, Holland.
France, and Switzerland, where the young only ordinarily are seen: the old rarely wander. (Tenn. III.) In its young state, as the black-toed Gull (Larus eremidatus) of authors, this species, writes Mr. Selby, is not of unfrequent occurrence, during the autumnal months, upon the north-coast of England, to which it is attracted by the Gulls that follow the shoals of herring on their approach to the hawls for the purpose of depositing their spawn. Like many other Skuas, it obtains the greater part of its subsistence by continual warfare on the above-mentioned birds, incessantly pursuing and harassing them till they are compelled to disgorge the food previously swallowed. In this occupation its dark plumage and rapid flight are certain to attract the attention of the spectators: and there are few who have not visited the coast of Scotland, and the northern districts of England who have not witnessed and admired the aerial evolutions of the Teazer, and the distressing and unfortunate objects of attack. It is but very rarely met with beyond the precincts of the Shetland and Orkney Isles in its adult state, and even then it has occurred within my own observation, namely, on an excursion to the Ferr Islands in the month of May, when two of these birds flew ahead of the boat in a northerly direction, and which were perfectly distinguishable by their lengthened and slender middle tail-feathers, and the black and white of their plumage. This Skua does not appear to be a permanent resident in any part of the British dominions, for, Low, in his Pauma Ornithologia, describes it as a migratory bird, arriving there and in Shetland in May, and departing in autumn, or as soon as the duties of reproduction have been effected. Mr. Gould says that he has not been able to ascertain whether it breeds among the British Isles, and adds, that it is certainly of rare occurrence. Its natural habitat, he thinks, is more confined to the North, namely, the shores of the Baltic Sea, Norway, and the Polar regions. All our Arctic voyagers mention it, down to Captain James Ross inclusive; and it appears to be common in the Polar seas of Europe and America.

Parry's Voyage (1819-20) thus "Arctic Lestris" is stated to be equally abundant in the islands of the Polar Sea as in Baffin's Bay. Captain Edward Sabine, who drew up the account, states that it is frequently met with inland, seeking its food along the water-courses which occupy the bottom of the ravines; differing from the Pomarine Lestris, which is exclusively a sea-bird.

LARISSA. [THESSALY.]
LARKS. The reader will find, under the article FRINGILLIDEA, a summary of the views of ornithologists as to the natural position of the Lark.

The subfamily Alaudinae is thus characterized and developed by Mr. Swainson:

* Bill more lengthened than in any of the Fringillidae; its tip entire or absolutely notched. Terial quills considerably lengthened, pointed, and general lengthened. Claw slightly curved; the claw of the outer toe always shorter than that of the inner toe; the hinder claw considerably lengthened, and either nearly straight or very slightly curved.

**Alauda. (Linn.)**
* Bill cylindrical; nostrils concealed. Wings very long; no spurious quill; the first, second, and third quills longest, and nearly equal; the rest considerably graduated; tips of the lesser quills emarginate. Tail forked. Head crest.

**Geographical Distribution.** Europe and America. (Swainson, see below.)

Mr. Swainson considers this as the fissirostral type.

Example, Alauda arvensis. This is the Alouette and Alouette ordinaire and Alouette des champs of the French; Lodola, Lodola canterina, Lodola di passo, and Lodola di montagna of the Italians; Feld Lerche of the Germans; Hedysly and Uexehald of the ancient British; and Shyfgray (provincially Larrow) of the modern British.

The Skylark is in many respects a beautiful song chanted forth far up in the air when at liberty and in its natural state, to require any description.

**Food.** Insects and their larvae, with many sorts of seeds and grain.

**Nest.** On the ground. Eggs four or five, greenish white, spotted with brown.

**Localities.** All the parts of Europe; also in Asia and the northern parts of Africa, but not in the south of that vast continent (Tenn.); the whole of Europe within the temperate zone, many parts of Asia, and the north of Africa. (Selby.)

Calendula. (Linn.)

**Generic Character.** Bill thick, much compressed; the main curvature, and convex; the commissure arched; the tip of the upper mandible wide above and inflexed. Wings long or moderate; the first quill very small and spurious; the second nearly equal to the third and fourth; lesser quills short, emarginate. Tail slightly forked. Lateral toes equal. Africa. The dendrostral type—C. magnirostris, 'O. d'Afr.,' p. 193. (Sw.)

Subgenera:—Myagra, Horst.—Bill as in Calendula. Wings short, rounded; greater quills hardly longer than the secondaries and tertials; the first quill spurious, half the length of the second, which is shorter than the third; the third, fourth, fifth, and sixth equal, and longest. Tail short, even. Legs long. M. jamaica, 'Linn. Tr.' xiii. 159. (Sw.)

Brachonix, Sw. (Brachonix.)—Bill as in Calendula. Hinder claw very short. Wings and tarsi much lengthened. Africa. (Sw.)

Agrodroma, Sw. (Anthus parvus, Auct.)

**Generic Character.** Bill slender, considerably compressed; both mandibles of equal length; the tip of the upper one not reflected over the lower, and with a small notch, almost obsolete. Wings long; the four first quills nearly equal; the rest rapidly diminishing, and emarginate at their tips; tertials lengthened, pointed, as long as the quills. Tail moderate, even. Legs pale, long, slender. Furus longer than the middle toe. Lateral toes equal; the outer claw shorter than the inner. Colour brown, lark-like. Distribution universal. The insessorial or pre-enormous type—Agrodroma rujeccens. 'Em,' 661, f. 1. (Sw.)

**Generic Character.** Bill slender, compressed, thrush-like.

* We cannot find this genus in Linnae's last edition of the 'Syst. Nat.,' nor in Gmelin.

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gard the development of the locomotive organs, and as these are more or less perfect, so does the larva resemble or recede from the insect in its imago state. Hence Mesara, Kirby and Spence divide larvae into two sections: those which, in the adult state, are more or less resemble the perfect insect; and those which are unlike the perfect insect. The larvae of both sections moult, or cast their skin, several times during their progress to maturity; the number of moults varies according to the species, and the period of intermoult between the moults is also variable, although typically short and straight. Africa. The tenuirostral type — Certhulaeida longirostris, 'Ois. d'Afr.,' 192; bifasciata, Rupp, 'Atlas,' plate 5; mirosa, Sw., 'Birds of W. Africa.' (vol. vii, p. 218.) (Sw.)

Certhlaua. (Sw.)

Generic Character.—Bill slender, lengthened, more or less curved; nostrils round, naked. Wings very long; the first quill spurious; the three next nearly equal. Tail moderate, even. Feet lengthened; the tarsi equal; length of the tarsus very variable, although typically short and straight. Africa. The tenuirostral type — Certhlaua longirostris, 'Ois. d'Afr.,' 192; bifasciata, Rupp, 'Atlas,' plate 5; mirosa, Sw., 'Birds of W. Africa.' (vol. vii, p. 213.)

Such are Mr. Swainson's views as to the arrangement of this subgenus. [Famigilidae, vol. x. p. 483.] The genus Anthus, Bechst., is placed by Mr. Swainson at the end of its subfamily Motacillina (Wagtails), under his family Sylviidae (Warblers).

Fossil Larva.

Dr. Buckland figures a larva ("Amadusa") and 'f' among the last Mammifer family of the Bridgewater Bird, of the third period of the Tertiary series, in the first plate of the illustrations of his 'Bridgewater Text.' He has previously noticed the remains of the lark in Kirkdale Cave. (Reliquiae Diluvianae, pp. 15, 31, plate xi, f. f. 24, 25.)

LARRIDE, LARRIDE, a family of Hymenopterous insects of the section Fossore, distinguished by the labrum being either entirely or partially concealed, and the mandibles deeply notched on the inner side near the base. It contains the following genera: 1. Palarus (Lat.), in which the antennae are very short, and are gradually thicker towards the apex; the eyes are closely approximated posteriorly, and enclose the ocelli; the second cibital cell is petiolated. 2. Tachytes (Faurer), antenna filiform, the basal joint slightly incrassated, the rest cylindrical; superior wings with one marginal cell, slightly petiolated and three submarginal cells, the third narrow and oblique; mandibles with a denticulate process on the inner side near the base. T. pomphilius (formis) is about 24 lines in length; black, with the basal segments of the abdomen red. It is an uncommon insect in various parts of England. 3. Larra: this genus differs from Tachytes (which is Lyrurus of Illiger) in having no tooth on the inner side of the mandibles at the base; the eyes not being closely approximated posteriorly, and the male thorax and abdomen being decidedly larger. 4. Dineta: eyes converging posteriorly; anterior filiform in the female, with the first joint incrassated, in the male larger, with a deep scutum, the four following joints submonticiform, and the five next slightly compressed and convoluted, the remaining three filiform; superior wings, with one appendiculate marginal cell, and three submarginal cells. But one species of this genus has been found in England. 5. Misopus (Jurine) has one marginal cell, which is not petiolated, to the superior wing, and two submarginal cells, the second being petiolated; the antennae are filiform in both sexes. There is but a slight projection at the base of the mandibles. bicolor (Jurine) is the only species found in England, where it is apparently rare. In Richard's 'Essay on the indigenous Fossilous Hymenoptera.'

LARUNDA. [Lemmostoda.]

LARVA, a term applied to that state in which an insect exists without its exoskeleton or from the exclusive use of the egg, and which precedes the pupa state. The animals commonly called Grubs, Maggie's, and Caterpillars are larva. Grub appears to be a general term analogous to larva; the term maggot is most generally applied to the larva state of Dipterous insects; and caterpillar in the most common acceptation of the term, is used to designate the larva state of Lepidopterous insects. These three terms however are used in a very vague manner.

The distinguishing difference perhaps which exists between the larva and the perfect insect consists in the superior powers of locomotion and consequently better developed skeleton possessed by the latter.

Though larvae never possess wings, they vary much as to...
Lepidoptera: they always possess six thoracic legs, but seldom any prolegs. In the case-worms (Trichoptera) and some others there are a pair of prolegs attached to the terminal segment of the abdomen.

Order Lepidoptera.—Here the larvae (or caterpillars) are soft and flabby, and usually of a cylindrical form. They possess six thoracic legs and generally ten prolegs. The prolegs vary in number, and are attached in pairs to the under side of the abdominal segments; but none are ever found on the fourth, fifth, tenth, or eleventh segments. In the larvae of the Geometridae there are but four prolegs, two of which are attached to the anal segment, and the other two to the ninth. Some of the Tineidae have but two prolegs, and these are anal. In the genus Apoda (Haworth) the larvae have no distinct prolegs, but in their stead a number of small transparent shining tubercles, without claws. The prolegs of almost all Lepidopterous larvae are furnished with a set of minute, slender, horny hooks, crotchets, or claws, of different lengths, somewhat resembling fish-hooks, which either partially or wholly surround the apex like a palisade. By means of these claws, from which there are from forty to sixty in each proleg, a short and a long one arranged alternately, the insect is enabled to cling to smooth surfaces, to grasp the smallest twigs to which the legs could not possibly adhere; a circumstance which the flexible nature of the prolegs greatly facilitates.  

When the sole of the foot is open, the claws with which it is more or less rounded are turned inwards, and are in a situation to lay hold of any surface; but when the animal wishes to let go its hold it begins to draw in the skin of the sole, and in proportion as this is retracted the claws turn their points outwards, so as not to impede its motion. (Kirby and Spencer's Introduction to Entomology.)

The larve of Dipterous insects are for the most part soft and flabby, and without legs; none have true jointed legs: some however have prolegs. The head is usually soft and indistinct, but in certain species the head is somewhat con- nucous, and of a determinate shape.

LARVARIA, the name of an obscure group of tertiary fossils, proposed by M. Defrance. (Blainville, Actinologie, p. 342.)

LARYNGITIS. [Count.] LARYNX is the organ of the voice; its frame-work is composed of five cartilages, which are capable of being moved on each other in various directions by muscles, so as to act upon two elastic bands, on which the voice essentially depends, and which are called the vocal ligaments.

The first, the thyroid cartilage (fig. 1), consists of two plates (a, b) of dense, tough, fibro-cartilaginous substance, of an irregular quadrilateral form, which are united at the lower part of their anterior edges (c, c) at an angle of 60°, and in which the isthmus of this angular union is felt in the front of the throat, forming what is called the Pomegranate Adam; at the sides of and behind which the form of the cartilage may be easily traced out by the fingers. The posterior edge of each plate bears at each side a process or horn (d, d, e, e) by which the thyroid cartilage is attached by ligaments above to the hyoid bone, and below to the cri-oid cartilage.

The cricoid cartilage (fig. 2) has somewhat the form of a signet ring. It is enclosed within the angle of the thyro-ideal cartilage, beneath whose lower edge the front and narrowest portion (a) of its ring may be felt, with an interval of about a quarter of an inch between them. It has an articulating surface on each side, by which it is moveably connected with the inferior horns of the thyroid cartilage, and two other smooth convex surfaces (b, b), on its upper and posterior edge, by which it is articulated with the two arytenoid cartilages.

The arytenoid cartilages have each the form of an irregular triangular pyramid (fig. 3). They are placed upon the upper edge of the broad part of the cricoid cartilage, just within the most expanded part of the angle formed by the receding plates of the thyroid. The base (a) by which each cartilage is connected with the cricoid is slightly concave, perfectly smooth, and capable of moving to a certain extent in every direction.

The epiglottis (fig. 4) is of a somewhat ovate form. It is attached by its apex to the angle of union of the plates of the thyroid cartilage, and projects obliquely backwards and upwards over the cricoid and arytenoid cartilages like a shield, guarding them from the contact of foreign bodies passing from the mouth.

These cartilages are connected chiefly by elastic ligament which is arranged in bands of varying thickness throughout the whole of the larynx; uniting the upper edge of the thyroid cartilage to the os hyoideum, and its lower edge to the cricoid cartilage; passing also from the arytenoid cartilages to the epiglottis; and uniting the edges of the trachea and bronchi; affording to all a firm but yielding connection, and endowing them by its elasticity with the power of resounding in accordance with the vibrations originating in the vocal ligaments.

The vocal ligaments are two narrow bands of highly elastic tissue, stretched between the anterior angle of the thyroid and the anterior surfaces of the arytenoid cartilages. The substance of which they are composed is a yellowish, dense, fibrous tissue, which is placed in those parts of the body where a permanent elasticity is required, as in the spaces between the lamina of the vertebrae, the coats of arteries, the rings of the trachea, &c. In fig. 5, a profile view of the right vocal ligament is drawn: a, a, is the outline of the thyroid cartilage, of which part of the soft side is removed; b is the prominence with which the cartilage of the right side; d, d, is the vocal ligament. In fig. 6, the view of the vocal ligaments a, a is taken as seen from above; they are directed anteriorly to the inside of the thyro-ideal cartilage at b, and posteriorly to the front of the arytenoid cartilages c, c. Between them is the aperture through which we breathe, the glottis d. It is bounded posteriorly by the inner edges and anterior angles of the arytenoid cartilages; anteriorly by the inner edges of the vocal ligaments. The true rest, as distinguished from the various breathing postures, is as a somewhat lanceolate form (fig. 11, as outlined by the dots), but when speaking or singing it is very much narrowed (fig. 11, the continued lines). The muscles acting on the parts of the larynx just described are arranged symmetrically and attached to corresponding points on each side of the larynx; and their names are compounded of those of the cartilages on which they are inserted, as follows.

The crico-thyroides (fig. 8, a, a, and fig. 5, c, e) is attached on each side, at one of its extremities, to the upper edge of the mirror front part of the cricoid cartilage; and at the other, to the lower edge of the thyroid, just before its lower horn. Its fibres are directed upwards and backwards, and its immediate action would therefore be to narrow the edges of the thyroid and cricoid cartilages. But the thyroid is fixed on each side by a ligament passing from its inferior horn to the side of the broad part of the cricoid (fig. 5, f), and the crico-thyroid muscle will there-
fore produce a rotary motion of the cricoid cartilage around the horizontal axis drawn through $f$. When the anterior edge of the cricoid cartilage is thus raised towards the anterior angle of the thyroid, its posterior and upper part will be moved backwards and downwards to a greater distance from the front of the thyroid; and if the arytenoid cartilages be fixed on the top of the cricoid, they will of course move with it in the same direction. The distance between their anterior edges and the angle of the thyroid (see fig. 5) will thus be increased, and the vocal ligaments (d, d), which are attached to those points, will be proportionally stretched.

The thyro-arytenoides (fig. 6, c, e) are attached anteriorly by the sides of the angle of the thyroid cartilage to the outer side of, and above, the vocal ligaments, and posteriorly to the anterior angles and outer edges of the arytenoid cartilages. Their simplest action will therefore be to approximate the same points which the preceding muscles render more remote; they will thus shorten and relax the vocal ligaments. Some of their fibres extend on each side for a short distance into the arytenoid cartilage; some being the vocal ligaments; those below have the power of narrowing the access to the glottis, while those above the ligaments may compress together the sides of the larynx directly over the glottis.

The crico-arytenoides postici (fig. 9, b, o) are attached to the posterior surface of the cricoid cartilage (a, a), and pass obliquely outwards, to be inserted into the outer angle of the arytenoid cartilages. In contracting these fibres, if the arytenoid cartilages be movable, they will draw their anterior angles outwards, and thus increase the width of the glottis; but if the arytenoid cartilages be fixed by other muscles, the crico-arytenoides postici will merely draw them backwards and stretch the vocal ligaments.

The crico-arytenoides laterales (fig. 7, c) are attached on the one hand to the inner sides of the cricoid cartilage (a), and on the other to the outer angles of the arytenoids (b); they rotate the latter inwards, so as to approximate their front portions and narrow the anterior part of the glottis.

The posterior arytenoid muscles (fig. 9, c, c) lie behind the arytenoid cartilages, and consist of fibres passing transversely and obliquely from one to the other. They therefore simply approximate these bodies, and narrow or close the back part of the glottis.

The simplest actions of all these muscles in regard to the voice may therefore be thus stated: the crico-arytenoides stretch the vocal ligaments; the thyro-arytenoides relax them; the crico-arytenoides postici open the glottis; the crico-arytenoides laterales and the arytenoides postici narrow or close it.

A band of muscular fibres may be also mentioned as passing from the arytenoid cartilages to each side of the epiglottis, and thus serving to draw down the latter so that it may cover the glottis more closely than when left to its own elasticity.

Below, the larynx opens into the trachea (fig. 10, g), which is continued into the chest, and there divides into two branches, the bronchi, whose ramifications and terminations form the air-passages and air-cells of the lungs. The lungs, being exactly contained in the cavity of the chest, are compressed by the contractions of its walls. The walls of the chest are therefore the power by which the air is forced from the lungs through the glottis, for the production of the voice, and it is by their more or less powerful contraction that the various degrees of intensity of the same note are produced. The trachea is composed of a series of cartilaginous incomplete rings, which are united behind by muscular fibres, and are connected together by longitudinal elastic bands. It is thus capable of variations both of length, breadth, and tension; and of entering into vibrations with the column of air contained in it, and of assisting in communicating those vibrations through its branches to the walls of the chest.

At the upper part of the trachea the windpipe gradually narrows towards the glottis (see view of its section in fig. 12); and above the glottis it suddenly dilates, so that the edges of the elastic vocal ligaments stand out from the wall of the larynx, and have space in which they may vibrate freely, like the lips in the mouthpiece of a trumpet. About half an inch higher the passage again contracts, so as to form a narrow recess on each side, directly above the vocal cords. This is called the vestibule of the larynx, and the prominent bands above it are called the false vocal cords, or the upper ligaments of the larynx.

They are formed of elastic tissue, like the inferior or true vocal ligaments, but in less quantity, and mixed with fatty tissue, so that they do not vibrate so freely. The walls of the vestibule are capable of being approximated by some of the fibres of the thyro-arytenoid muscles, which are thinly distributed upon them; and thus the recesses may be nearly obliterated, and the upper ligaments brought almost into contact.

The highest part of the larynx is formed by two folds of membrane passing from the arytenoid cartilages to the epiglottis (fig. 10), forming an oval aperture which admits of variations of size by the action of the muscles already mentioned. At this aperture the larynx communicates with the upper and most expanded part of the pharynx, the cavities of the mouth and nose, and the frontal and other sinuses which open into the latter. These sinuses are walled round by bone, but the pharynx, and its communications with the mouth and nose, as well as the external apertures of the two latter cavities, are in great part muscular, and may be thus subject at will to alterations of form, size, and tension.

The larynx has been compared to a variety of musical instruments, and it will be seen that in its different parts it unites the principles of several. In its essential vocal apparatus it most nearly resembles the reed instruments, as the reed-pipes of the organ, the clarionet, &c., or rather a modification of them, in which the vibrating body is not fixed in the same dimensions as the reed, but consists of a lamina of elastic membrane, capable of varied degrees of tension, as well as of alterations in its...
length. No musical instrument has yet been constructed on this principle, unless we consider as such the various kinds of trumpet in which the vibrations are produced by the air impelled against the edges of the lips, rendered more or less tense by the action of their oribital muscles. The principle has been applied in the formation of artificial larynges by Biot, Cagniard de la Tour, Willis, &c., who have chiefly used caoutchouc membrane; and by Müller and Henke, who have employed besides, either the vocal ligaments themselves, or lamina of the elastic coat of an artery. The most complete examination of the subject is that made by Müller, and published in the first part of the second volume of his 'Physiologie des Mensch.'

It is evident that by adapting to one of the open extremities of a tube two portions of thin elastic membrane, so that their opposite edges leave a narrow space in the middle, through which the air blown into the other end of the tube may pass and excite vibrations, one obtains an imitation of the essential vocal apparatus of the larynx; the trachea being replaced by the tube, the vocal ligaments by the bands of elastic membrane, and the glottis by the space between them, while the parts above the glottis may be imitated by adapting tubes of different sizes and forms above the membranes.

In such an apparatus Mr. Willis found (Cambridge Philosoph. Trans., 1839) that in order that two lamina of elastic membrane enclosing a narrow interval should produce sound, the parts near their edges must be parallel to each other. Applying this law to the case of the larynx, he observes that something more is necessary for speaking or singing than a certain degree of tension of the vocal ligaments, for they are always more or less tense; and even when their tension is increased, and all the cartilages are in the position for producing sound, we may yet breathe quietly, the edges of the vocal ligaments not being parallel.

When the vocal ligaments are thus placed, the modulations of the notes are effected by changes in their length and tension; for, like those of other elastic membranes stretched at both ends, they follow in many respects the same laws as strings. [Cond.] Thus, the degree of tension being the same, the height of the note is inversely as the length of the membrane; and the length being the same, the height of the note, as expressed by the number of vibrations, is directly as the square root of the power employed in producing the tension. The application of these laws to the vocal ligaments was experimentally proved by Müller. In a part of his experiments on the dead larynx he succeeded in producing the complete scale of notes and half-notes through a range of 24 octaves, by gradually increasing the tension of the vocal ligaments by weights applied to one of their extremities. The weights produced extension in the same direction in which the crico-thyro-muscles act; when, the arytenoid cartilages being fixed, they throw them backwards with the cricoid as already explained. If in this way the larynx be re-examined in all its parts, not only the principles of pitch, but also the modulations of pitch, he sounds, when it is only attached to the mouth-piece, and when the mouth-piece is fixed on the body of the instrument. This part of the subject has been particularly illustrated by M. Savart, Mr. Wheatstone, and Mr. Bishop. It is well known that in all reed-instruments, unless the tube or body be adapted to the reed so as to be capable of the same number of vibrations as it is, there is always a discordance of sounds. If for example the tube be unalterable in length, while the reed of the instrument is capable of vibrations, the notes produced will be irregular in intensity, and in some parts of the scale will be totally extinguished. Thus it is that in organs, in each pipe, the tongue and the tube have to be adapted to each other, and that in clarinet-playing much of the perfection of the tone depends on the adaptation of the pressure of the lips on the reed to the length of the tube as determined by the number of holes covered by the fingers. Savart (Journal de Physiologie, t. 5) has shown that if the ends of the tube be closed, then the reeds of the pipe, in some cases like those of reed-instruments, be capable of varying degrees of tension, an extraordinary variety and fullness of notes may be produced; and that the shrill whistle of the bird-call (with which he compared the larynx) is, with the same essential principle, the original form of the trumpet, introduced into a full round tone. In the human body such a tube exists on both sides of the glottis, and is in both parts capable of varieties in tension, size, and form. Thus the trachea may be acted on by its posterior muscles and its
elastie bands; and to a far greater extent the parts above the glottis will vary in their conditions. In singing an ascending scale of notes, if the finger be placed in the interval between the angle of the thyroid cartilage and the front of the hyoid bone, it will be found, as the notes emitted become higher the interval diminishes and the whole larynx rises. Thus the tube above the glottis is shortened, just as in all wind-instruments the body is shortened by opening the holes at their sides, or by pushing one part of the tube with the lips while the other is compressed. The larynx itself is diminished in size and an increase of the tension, to accord with the diminished length of the tube, that their vibrations may be in correspondence with those of the vocal ligaments. As the voice passes through the descending scale, the opposite changes occur; the vocal ligaments lengthen and are less tense, the larynx descends, the cavity of the mouth is expanded, and all the tissues are relaxed. Hence it is that the singer, when his voice is exerted in its highest notes, feels the greatest fatigue in the parts about the larynx and pharynx; while in singing the lower notes he remains unwearyed far longer, and at last feels fatigue chiefly in the muscles of the chest.

It is difficult to determine the circumstances on which the differences in the nature of the voices of different persons depend. The difference between the male and female voices is probably owing to the comparative shortness of the vocal ligaments in the latter. According to Müller their average length in man is 165 millimetres, in woman only 129 millimetres. But to account for the differences of tenor and bass, or of soprano and alto voices, no good evidence has yet been collected. The average compass of the voice is two octaves, but in different persons the scale in different persons; thus a bass voice commonly has its lowest note four or five notes lower than a tenor, while a tenor has its highest note from four to five notes above the highest note of the bass voice. A soprano voice again has its lowest note at nearly the same part of the scale as the highest note of the bass voice; and the whole compass of the human voice, from the lowest of the bass to the highest of the soprano, would be nearly four octaves. The voices of children resemble very nearly those of women, but in man's a remarkable change takes place at puberty, when the voice is said to crack; the change from the shrill treble voice of the boy to the fuller and rounder tone of the man is sometimes perfected almost suddenly; but in most cases it is for some time in progress, wavering between two extremes, dually growing during, but when any exertion is used, suddenly starting up again to the shrill tones of boyhood. In old age, the cartilages of the larynx becoming bony, the ligaments hard and unyielding, and its muscles pale and powerless, the voice commonly becomes almost a tremble as if the voice were not sufficient strength in the muscles to maintain a due tension of the vocal ligaments; it becomes harsh and monotonous, and

Turning again to childhood treble, Pipes and whistles in the sound.

Much yet remains unknown of the actions of the various parts of the larynx, but enough has been said to prove that it is perhaps the most perfect piece of complex mechanism in the human body; that, as in comparison with the imperfect contrivances of art, it is not possible that we should be able to discern all the energies of an instrument which in a space of about six inches by two produces a range of notes of between two and three octaves, all of perfect clearness and harmony, and with a tone far superior to any yet known—which is capable at the same time of giving a wide range of expression, and varied degrees of power—of executing difficult and intricate passages with the utmost facility and distinctness, to which above all will last for years without need of repair, and can be proved by a judicious use. The larynx fulfills all this, and is besides subservient to other functions of vital importance to the whole body. In breathing for example, its exquisite contrivance is made use of by the absorption of any foreign substance, or of a deleterious gas, and the glottis is firmly closed by the thyro-arytenoid muscles, to prevent the entrance of the noxious body into the lungs. The same action occurs as we swallow each portion of our food, to prevent any of it passing into the lungs; and if a particle by accident touch the glottis, coughing is excited to ensure its speedy removal. Again, when about to make a violent exertion, a man first draws a full breath, and fixes his chest that he may have a firm support for all the muscles of his limbs; the same little muscles assist in this action by closing the glottis, and thus preventing any portion of the air from being forced from the chest, however great the exertion of the muscles attached to it.
song the north of Africa, stating at the same time that the latter portion was collected in the time of the Emperor Drusus. Dioscorides gives Syria, Armenia, Media, and Libya as the countries where it was procured. The produce of this plant having been so valuable, it necessarily became a considerable source of revenue, and was represented on the coins of the Cyrene Lybiu, Cypriotes, and Africans. The above edition of Theophrastus (p. 598) with the head of a beardless man on the obverse, while a third is described in Vivianii's 'Flora Libyca,' in which the figure is married, but in all the plant is exactly the same. It is likely that, from the seeds of the plant, these coins, there can be no doubt of its being one of the umbelliferae, and it has successively been thought to be asperatum Siler and gummosiferum, Liquigamium laticlavis, and may be 'Salvia officinalis.' Of this its compound nature as to whether the countries becomes investigated, whence the antients gained the substances they have described, these doubts are at least partially to be found in the MS. of Flora, and the only one at all resembling the presentation on the coins, would appear to have finally terminated the question. This plant has been described by the name Flora Libyca, in a work named Thesauri Silvarum, which was published by the printer T. Crescitella, and a description of it may be seen in Dr. Lindeley's Flora Medica, p. 52. The root is said to yield a juice which, according to the testimony of the antients of the country, is essential to life. Those who have travelled subsequently in the same country, think it is the Laser, or Lasperpium, in Cyrenaica and Marica, and has called the plant Lasperpium Darius. (L'ingage dans la Cyrenaicque, Paris, 1827.)

Thus the attempt has to be made to identify the two kinds of Laser. Thus Pliny, *Diu jam non ad nos invexitur laser, quam quod in Perside aut edda et Armenia nascitur, petito in sinu Cyrenaicae, Osanna de la place, et behold, *Saccarum* has also been confused with Armenia and Media. Hence it is probable that the same pungent substance was substituted for the more highly esteemed Cyrenaic juice, when this became scarce. There is a very little doubt that Tassafadda was at one time obtained for it, at least since the time of the Arabs, for Vivian describes it huult, which is Tassafadda, as of Tunis, one, was difficulties, and the other, the latter from *regio Chiruna* and in the Latin translation; while *Anjuidan*, which are the seeds of the Tassafadda plant, are translated *Laserpium* and are likewise marked with the same name in Persia in early times, we know, from seeing it figured in the Sanscrit Amara Kosha, which is at least of early date as the commencement of the Christian era, the juice and seeds of the Tassafadda are liked, valued, and esteemed even as cumin among Asiatic natives. While the root of the *Iphlim*, which grew on Paropamisus with pines, is men- tioned by Arrian as affording food to numerous herbs of the same nature. In 1616 the herald Mr. Moorcroft to be the case, even in the present day, with another umbelliferous ant in the same region, that is, *Prangos paludaria,* which therefore conjoined by Sir John to be one of the kinds Silphium. *PRAEGERGA.*

**LASSO.** ORLANDO DI (or Orlandus Lassus, a very distinguished name in musical history) was born in 1520, Mons in Flanders, but, says Thunian, was, on account of his fine voice, forced away, while a boy, by Periender, one of the noted monks of Lyons. Afterward, continues the same historian, being grown up, he died in his two years at Rome. He then travelled in France and England with Julius Caesar Branctus, and subsequently lived some years at Anwerp. On the invita- tion of Albert, duke of Bavaria, he next proceeded to Mu- ch, where he married. But Charles IX. of France, who it only consented to but assisted in the massacre of the Huguenots, and whose conscience-pangs, like those of Saul, made his mind very weak, it is said, wretchedly per- ceived Orlando the high and lucrative situation of maître- a-chapelle at his court, which the composer accepted, and, thenceforward, was on his way to Paris, when the death of a king arrested his progress, and he returned to Munich, where he died in 1589. He long enjoyed so high a reputa- tion, that a poet said of him—

*His life in Lusso Lassos qui recreat orbem.*

His compositions are extremely numerous, and will show great knowledge of his art, much invention, and a many determining not to be shackled by the rules and examples of the bigoted musicians of his time. "He was the first great improver of figurate music," Sir John Hawkins remarks; and Dr. Burney testifies, "that in his compositions the chromatic accidental semitones are expressed by a sharp, and no longer left to the mercy and sagacity of the singer, as was before the constant custom." After his death, Rudolph, his eldest son, published a collection of his works, in seven volumes, and increased the title of *Magnus Opus musicorum Orbis Lassos de Lando, complectens annos cantiones quas Motetes sulgo vocant, a 2 ad 12 voces, &c.;* and at Munich is preserved among the musical archives a precious manu- script of compositions which are attributed to the Lassus. In the British Museum is a Latin motet by Orlando; and specimens of his genius are given by Hawkins and Burney, in their histories of music.

**LATAKIA.** [Syria.]—Latakoo, or Latakoo, are two towns in the central part of Southern Africa, about 20 miles distant from each other. The south-western is called New Latakoo, or Kuruman. They are situated east of 24° E. long., and near 25° S. lat., nearly at an equal distance from the Atlantic and the Indian Ocean. Never far from the town, and in the western desert from the better-watered and more populous districts which extend eastward to the Indian Ocean. The latter seem to have a much more broken and hilly surface than the southern and more eastern districts. In these towns, like some others in this part of the world, must be considered as the first attempts of the wandering nations inhabiting this country to form fixed settlements. In 1814 each of them contained a population of about 5000 souls, and consisted of low and dirty huts.

**LATA'NIA,** a genus of Palms of the tribe Borassineae of Martius, which has been so called from the name latanier, of one of the species *L. borbonica*, indigenous in the Isle of Bourbon. The other species, *L. rubra*, a much smaller palm, and remarkable for its reddish flowers, is of the Isle of France. Both are moderate sized, with all the leaves of a palmate fan shape, the flowers yellow, and the drupes yellowish coloured. The leaves, like those of other palms, are employed by the natives for covering their huts, as well as for making fans and umbrellas. The leaf-stalks are split and employed for making baskets, sieves, &c. The fleshy part of the fruit is astringent, and the kernel bitter and purgative; and the sap is possessed of remarkable antiseptic qualities, according to the state- ment of French authors.

**LATERAN, the name of a church, Basilian Lateranen- sis, with a palace and other buildings annexed to it, situated in the south-eastern extremity of Rome, once the Palace of Aurelian and Honorius in the elder and now desolate part of the city. This group of buildings is called 'in Laterano,' from being built on the estate once belonging to Plautius Lateranus, who was put to death by order of Nero (Tacitus, Ann., xx. 60). It appears that the later emperors had a palace on the spot, and that Constantine had a church or chapel annexed to the palace. This was the beginning of the splendid church of St. John in Laterano. Constantine, or some of his successors, gave up the palace to the bishops of Rome, and the Lateran, till the beginning of the four-teenth century, was the residence of the popes, who enlarged the adjoining church at different times, and made it the episcopal or patriarchal church, which it continues to be. The pope, in the capacity of bishop of Rome, goes to the palace on the spot, and he officiates there on certain great festivals, for which reason it is styled the head church in the world, 'Ecclesiarum Urbis et Orbis Mater et Caput.'

Many councils have been held in the palace of the La- teran, five of which are styled Oecumenic, or universal, at least for the Western church, and some of them were held in the most important periods in church history: two of them, concerning the quasimodo with John XXII., and the other, the 1149 against the Waldenses and Albigenses, and above all the Conclusion Lateranense of 1215 held by Innocent III., which was attended by more than a thousand fathers, and in which the Albigenses were condemned and the excommunication defined. The palace of the Lateran fell to ruin during the long residence of the popes at Avignon in
LATIMER, HUGH, bishop of Worcester, the son of a farmer in Leicestershire, was born about the year 1472. He was educated first at a grammar-school, and afterwards at Cambridge, where he took a degree, previous to entering into holy orders. The preaching of Bilney directed his attention towards a stricter discipline of the church of Rome; the subject soon engrossed his mind, and his 'heretical preaching,' as it was then called, caused a remonstrance to be made by the divines of Cambridge to the diocesan bishop of Ely, and his interference was requested. The bishop would not yield to the entreaty, but used no further harshness towards him than to forbid his preaching within the diocese, an obstacle which he overcame by gaining the use of a pulpit in a monastery and martyrdom. He was, however, transferred to the court of Rome; but, having shown his moral conduct and kindness of disposition, together with the merits of his cause, gained him a large number of hearers. He was at this time a person of sufficient importance to be esteemed worthy of persecution, and was dealt with accordingly, but it was not until Henry VIII. had been thirty years upon the throne, that he became distinguished as one of the principal reformers.

Cromwell, the king's favourite, had already given him a benefice in Wiltshir, where he advised the assuming doctrines with such plainness as to cause the bishops to cite him to London to answer for his Heretical opinions. Cromwell continued afterwards to be his friend and patron; he rescued him from the perils of the citation, recommended him to the court; and he was transferred, soon afterwards the bishop of Worcester was conferred on him (1535). The duties of this see he performed in the most active and exemplary manner, while holding audience, giving instructions, and correcting abuses, never failing to exercise the Reformers' power. Thus did he employ himself for three years, at the expiration of which passed the act of the Six Articles (Burnet, vol. i.), from which he so totally dissented, that he resigned his bishopric. After this, he followed his example, but Cranmer retained his office.

Latimer now sought retirement in the country, where he would have continued to reside, had not an accident befallen him, the effects of which he thought the skill of London surgeons would alleviate. He arrived in London the day the power of Cromwell was nearly at an end, and the master, in the hands of Gardiner, who so soon discovered him in his privacy, that he procured accusations to be made against him for his objection to the Six Articles, and he was committed to the Tower. Different causes were urged against him; he remained a prisoner for six years; and not until the accession of Edward VI. did he obtain his liberation. The parliament then offered to restore him to his see, but he declined it. In the hundredth year of his age, he said, made him desirous of privacy. In this respect we find him the accuser of Bonner, occasionally the adversee of the king, and continually the strenuous repower of the vain of the age; but the reign was short, and with it vanished prosperity. He expired, and was taken up, and after his death, in September Mary had begun to take vengeance on the Reformers, and among others Latimer was committed to the Tower. Though he was at least eighty years old, no consideration was shown for his age; and he was sent to Oxford to dispute on the corporeal presence. He had never been accounted very learned: he had not used Latin much, he told them, these twenty years, and was not able to dispute; but he would declare his faith, and then he would be more pleased. He said, 'First, I was enlightened in the presence of Christ in the sacrament to be only spiritual: he enlarged much against the sacrifice of the mass; and lamented that they had changed the communion into a potion merely; that they had taken the cup away from the people; and, instead of service, had brought the nation to a worship that they did not understand.' (Burnet, vol. iii.) They laughed at him, and told him to answer their arguments; he reminded them that he was a bishop; he was not used to talk like a monk, the laughter however continued, and there was great disorder, insulterings, shottings, tauntings, and reproaches. When he was asked whether he would abjure his principles, he only answered, 'I thank God most heartily that he hath prolonged my life to be able to say, I may in this case die, and say kind of death.' On the 16th of October, 1555, he was led to the stake with Ridley, gunpowder being fastened about his body to hasten his death; it took fire with the first
Latine was remarkable for moral excellence and simple, frugal living, and for sagacity and ability: he was a good but not a great man. (Burnet's Reformation; Le Bas's Life of Cranmer; More, Dict. Historique; Biog. Dict.)

Laetini' was the name of one of the oldest known nations in Italy. They settled in the south of Latium, on the far remote time, long before the building of Rome, from the central Apennines in the neighbourhood of Reate (the modern Rieti), into the lower country between the Anio, the Tiber, and the Uscma, a name which afterwards called Latium. Varro, who derived his information from the old traditions existing at Rome in his time, says that they were a branch of the aborigines or oldest inhabitants of the peninsula, who were considered by some as indigenous or autochthonous of the country, whilst others, and Dionysius among the rest, thought that they were descendents of an Arcadian colony settled in Italy long before the Trojan war, and identical with the Gnostrians. These aborigines met in the lowlands the Siculi, who are represented by some as a colony from the West, perhaps from Spain, and by others as indigenous in Italy, and identical with the Tyrrhenii. These Siculi, or Sicelii, were partly driven by the aborigines to the southwards, and the rest amalgamated with the Latin and Umbrian tribes, and so formed that group of aborigines called afterwards Latini Prisci, and by Ennius called Casii, which in the Sabine or Ocean language, according to Varro, meant old, or the earliest, and the word is still extant in many dialects, in the dialects of the Papal provinces of Sabina and Umbria. Several of these Latins then appear to have formed their settlements in the lowlands by small communities, perhaps small tribes or even families, a circumstance which would account for the great number of villages or towns spread over a small surface. Several of these became in course of time considerable places, long before the existence of Rome. Such were Laurentum, La- navum, Lavinius, Aricini, Gabii, Tusculum, Tibur, Praeneste, Labicum, Collatia, Circe. [LAETUM.] The story of Ennius, who was the first to give the Grecian blood in the Latin race seems not to be doubted, and a comparison of the elementary parts of the Greek and Latin languages proves that those who used these tongues were sprung from the same stock. They were settled by some tribes in Latium, and the Latin communities were united by religious rites. Cato in his 'Origines' says that the temple of Diana in a grove near Aricia was resorted to for their common sacrifices by the Aricii, the Tusculani, the people of Lanuvium, of Laurentum, of Circe, and also by the Rutuli, a people at one time distinct from the early Latins, and inhabiting a nook of land near the sea-coast, between the Latins and the Volsci, and whose capital was Ardea. The Numicius was the name of the common Latins of Aricia and Larinius. The Rutuli are mentioned as a wealthy people in the third century of Rome, in the time of Tarquininus Superbus (Livy, iv. 57); their wealth was probably the fruit of their maritime trade. Ardea is said to have sent a colony to Cretum in Spain. The Rutuli however appear also as forming part of the Latin Confederation, and there was a temple dedicated to Venus between Lavinius and Ardea, which was under the care of the Ardeates, and whither all the Latin women of Latium went to be saluted by the Roman deities. At other times the deputies of the Latin towns assembled at the Lucus Perenensis, where the wood of Marinos now is. (Livy, i. 50; vii. 23.) The independent deities of the Latins were Saturnus, who first taught agriculture to the Latins, and from whom they derived the name of Saturnini, and from whom they derived the peculiar word Saturne, delivered by his oracle answers from the depth of the forest of Albanus. Venus and Ceres appear to have been of later introduction into the Latin mythology.

The Latins are described as a race robust, hardly, frugal, warlike, and their early union with Rome, was great part of P. C. No. 831. whose population was recruited amongst them, contributed mainly to the growth and success of that republic. Their morals were simple; it is recorded by Athenaeus and A. Gallus, on the testimony of earlier writers, that their women did not drink wines, and the custom of being saluted by the cheek by the Latins, was introduced in order to ascertain their abstemiousness. Their towns were strong, both by their position and their massive walls, traces of which still exist on the sites of ancient Praeneste, Tusculum, and Lavinium, situated anterior to Rome, and are ascribed by some to the Tyrrhenians, who resorted to the Latini, and have been confounded with the Pelasgians. The foundation of Alba is involved in great obscurity, but the fact of its being an important town several centuries before the existence of Rome is beyond doubt. [LONGA.] Whether Alba was at the head of the Latin Confederation, or was the centre of another confederation distinct from that of the Latins though connected with it, has been a matter of doubt. Niebuhr adopts the latter supposition. A distinction is made by Livy between the Albanians and Latins. The dictator of Alba is not called the dictator of the Latins. The founders of Alba were either emigrants from Lavinius, who built a town and set up an independent state for themselves, according to Livy's story of Ascanus, or they were strangers, probably a tribe from the mountains, who built a new town, which in course of time ruled over part of Latium and sent colonies to Lavi- nius, or the name of Alba was given to the town that became deserted. Alba is said to have ruled over thirty cities, and a like number of thirty towns is mentioned as constituting the Latin confederation in the Roman period.

Passing over the obscure period between the building of Rome and that of Alba, we find that the Gauls first made contact with the latter city, which, although built on Latin ground, and itself a colony of Alba, paid no great deference to its mother-country or elder neighbours. Rome, according to tradition, was a city of refuge, and its population a mixture of various races, who did not acknowledge any ties with or duties towards others. Their first quarrel was with the Sabines, with whom afterwards they made an alliance; next with the Etruscan townships bordering on the Tiber, and the Etruscans came later in contact with the Latin同盟 with Lavinius, notwithstanding the murder of Tatius, the Sabine king, and the ally and partner of Romulus, which had occurred there out of private revenge.

Under Tullus Hostilius war broke out between Rome and Alba, which ended in the destruction of Alba and the removal of the inhabitants to Rome. The other Latin cities appear to have taken no part in the war, but on the contrary entered into an alliance with Rome. (Livy, i. 32.) The capital of Ancus Marcius was at Ardea, and the foundation of the Latins against Rome is mentioned: the result was that Poltiorium, Tellinum, and Ficena were taken by the Romans, and the inhabitants transferred to Rome, where the town of Ardea was founded. Ardea was the elder, the successor of Ancus, attacked the Latin towns separately, and took Appiola, Corniculum, Camera, Ficulnea vetus, Custrumerium, Ameriola, Medulla, and Nomentum, after which peace was made, but it is not said on what conditions. Servius Tullius obtained, by agreement with the leaders of the Latin cities, what his predecessors could not obtain by force, namely, that the Latins should unite with the Romans in building a temple to Diana on the Aventine, which was common to both provinces. This was considered as an acknowledgement that Rome was the head of the Latin nation. The Sabines were also included in the compact, and the temple was declared to be an inviolable asylum for individuals of the three nations. It was likewise agreed that, after the annual sacrifices, conference should be held between the deputies of the various nations, and matters in dispute should be settled in a friendly manner. This wise measure greatly contributed to consolidate the strength of the confederacy. The treaty between Tarquininus Superbus, who was anxious to secure to himself a party among the leaders of the Latin towns, and had given his daughter in marriage to Mamilus, one of their chiefs, convinced them to an assembly in the wood of Perinuni, where he got rid by force of the assembly of the dominus of Aricia, who is represented as the leader of the opposition among the Latins. (Livy, i. 50, 51.) Tarquin then persuaded the Latins not only to renew the treaty with Rome, but to acknowledge him as their ruler, as a chief, and to send their youth to serve no longer as auxiliaries, but...
mixed with the Romans in the same legion. He united a
century of Latins and a century of Romans in every mani-
ple commanded by a Roman centurion. All this, together
with his treatment of Gabii, show that Tarquin had
ceased in making himself real master of Latium. Tarquin
also assumed the presidency of the Ferio Latini, or festi-
vals of the Latin state, which by an antient usage were held
once a year on the summit of the Alban Mount, and were
designed as a means of maintaining Latins or Latins
and he maintained the solemnities common to the Romans, the Latini, and the
Hermeci. Deputies from the three nations and from other
allied districts attended, each bringing their victims. The
sacrifices lasted three days, some say six, after which a
committee of men, each of six, was chosen among the de-
puties. These fêtes continued, bating some temporary in-
terruptions, to be held down to the latest period of the Ro-
man republic, and one of the two consuls always attended
them. (De Nat. Deor., i., 6; Ep. ad Fam., viii., 6; Dist.
нат., i., 11.)

After the expulsion of the Tarquins, the Latin cities, partly
to free themselves from Roman supremacy, and partly in-
stigated by Mamilus, Tarquin's son-in-law, and the other
concessions of the Tarquins, rose in arms, and a war ensued
between them and Rome, which ended in the total defeat
of the Latin forces by the Roman dictator Posthumius,
near the lake Regillus, between Labieum and Gabii, a.c. 492.
Rome, on condition that the Latins should expel the refugee partisans of the Tar-
quins. These lenient conditions were probably agreed to
by Rome, from apprehension of the approaching struggle
with the Volsci. A few years later, under the consults
of Aemilius, Cassius, and Postumus, Quintus, a Latin,
'fados,' or treaty of alliance, was made between Rome
and the Latins, by which was renewed the libratian
franchise formerly existing in the time of Servius in each of
the two nations with respect to the other, as being on a
 footing of perfect equality, though probably without the
alteration of the respective political franchises. This treaty is
known in the Roman writers by the name of the Cassian
League, Cassianum fados: the conditions were engraved on
a pillar, as is mentioned in the history, and the subject
of them is given as follows by Dionysius, who took them
from Macer, who had seen the inscription:—There shall
be peace between the Romans and the Latins so long as
heaven and earth shall keep their place; neither state
shall war against the other, nor instigate foreign states
to do so, nor grant a passage through its territory to foreign
armies against its ally; but when either suffers damage or
devastation, the other shall render it protection, help,
and assistance. All cities, towns, and overseers of
war shall be shared equally. Private suits shall be decided
within ten days in the place where the cause of litigation
arose. No article shall be erased from this treaty nor
added to it, except by the common consent of the Romans
and Latines. The rights of Latium, as well as those of Latini,
but it appears also from other authorities that the Latins
shared with the Romans, or held by turns, the command of the
combined forces of the two states. (Niebuhr, vol. ii.,
The Lege with the Latin.) Seven years after this league
Spurius Cassius concluded a treaty with the Hermeci
on similar terms; and it is remarkable that in some cases, as
at Antium, colonies were sent consisting of equal portions
of the three nations.

That in a.d. 376, when the Latins with Rome lasted for about
a century, till the irruption of the Gauls, during which
period there were but few occasional interruptions of the
harmony between the two states. To one of these Rome
has given the name of the Gallic war. The war of the
people of Aricia having referred to the arbitration of the
people of Rome their dispute concerning a territory to
which both laid claim, the cause was pleaded before the
Roman tribunals, and just as the votes were going to be
counted, an old man, eighty-three years of age, called
Scapitus rose, and said that he remembered, when serving
in a former war, to have noticed the territory in question
as belonging to the town of Coriolis, which was taken by the
Romans, and that therefore he knew the point.

Upon this the tribes decided the question against both parties, saying that the territory
belonged to the Roman people. In vain the consuls appealed to their honour and equity not to set as judges in their own
cas, the land was taken possession of. The conse-
quence was that Aricia offered to join the league of the
Volsci and Equi against Rome, but was deterred from so
doing by receiving from the Roman senate hopes of
redress. Soon after a dispute broke out at Ardea between
the chief plebeian and a young woman who had two suitors, one of each class; and
this led to a civil war. The patrician party proved
the stronger within the town, and drove out the plebeians
who, being joined by a party of the Volsci, after plundering
the territory of Ardea, were driven back by the
patricians applied to the Roman senate for assistance. The
consul M. Geganius Macerinus, being sent to their assis-
tance, a.c. 443, defeated the besiegers, and took Cluibus, the
Volscian commander, prisoner. But these disturbances
brought to the attention of the Romans the important
opportunity of sending thither a colony to strengthen the
place against any future attempts of the Volsci; and at
the same time directed the triumviri, who had the conduct of
the war, to divide the principality of Ardea, and to
provide the principality of Ardea, and to

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with the Etruscans and the Hernici; besides being threatened by the Gauls, who still hovered about the country. When however, some years after, the Gauls, though repossessed, appeared in force again, the plains of Latium, the coasts of which were at the same time infested by Greek pirates; the Latin towns, in a meeting which they held at the wood of Ferentum, sharply replied to their appeal, and they speedily found the contingents, 'that the Romans ought not to talk as imperiously to those whose assistance was to them of vital importance; that the Latins would fight rather for their own liberties than for the purpose of extending the Roman power. The Carthaginians are mentioned by Livy as having entered into a treaty with Rome; but Polybius gives us the text of a former treaty, and to have been concluded between the two republics in the first year after the expulsion of the Ediles. This treaty, confirmed by Decius, was made in the year 340, and the Latins, and fell back upon the second line, or 'principes,' when, at this critical moment, Decius, devoting his life to the Di Manes for the safety of his country, and mounting his horse, rushed into the midst of the Latin ranks, broke through their first line, and at last fell covered with wounds. The Latins, though somewhat confounded by this desperate onset, continued to fight bravely, and pushed forward their triarii, or third line, whilst the consul Manlius kept back his third line, kneeling and concealing in the rear, as a last reserve. When he saw the whole Latin force engaged and already breaking through his line, he ordered his reserve to attack the enemy. This decided the victory; the Roman triarii were fresh; the Latins, being weary and taken by surprise at the moment when their ranks were broken, gave way, their ranks were broken, and hardly one-fourth part escaped to Minturnae. After sustaining a subsequent defeat at Trifanium, the Latins made their submission, when part of their land was confirmed to their Romans. The people of Laurentium however, who had taken no part in the war, were excepted from the confiscation, and their feast, or treaty of alliance, with Rome was renewed. In the following year however several of the Latins rose again; but instead of uniting their armies in the field, they kept their men within their respective walls ready to sally out; and whenever the Romans attempted the siege of one, the rest lent assistance to the besieged. The strength of the Latin league was their numerous fortified towns, inhabited by a warlike people, though inferior to the Romans in discipline, training, and moral perseverance. The Romans laid siege to Pedum; but the inhabitants of Prænestæ, Tibur, Velitrae, and others, came immediately to its assistance, and the consul Aemilius raised the siege. Latium, as Livy observes, was in a state that was neither peace nor war. In the next year (n.c. 337) the consul L. Furius Camillus, grandson of the deliverer of Rome, was in the field: he entered Pedum by storm, and together with his army marched upon the most resolutely the other Latin towns, and placed garrisons in them. On his return to Rome he made his report to the senate; he told them that it was in their power to destroy the Latin League, and to make a vast sofa of the towns that they had not derived the best part of their strength in former wars; but he advised them to attack the people to themselves for ever by giving them the Roman citizenship, and thus to strengthen the sinews of the republic. The senators, adopting treachy as the worst course, made however a distinction according to the conduct and merits of the various Latin cities. Lanuvium and Nomentum received the Roman citizenship; Tusculum was confirmed in the possession of it: Aries was kept at a time as a subject town, but was afterwards admitted to the franchise; Tibur and Praeneste had their lands confiscated, not so much for the late revolts as for their former association with the Gauls, a barbarous and fierce people. Velitrae, as being an old and Roman colony, was treacherously treated: its walls were razed, and its senators banished beyond the Tibur, under severe penalties if any of them should be found on the left or Roman bank of the river. Their colonists, the consul T. Manlius Torquatus, a man more than Roman sternness and inflexibility, explaining the insolence of a man of Setia, swore that if the Patres Consuliliary should be so insane as to accept his proposal, he took the helm of the right wing, and the consul Manlius should meet there. The senate declared war against the Latins, and the two consuls, Manlius Torquatus and Decius Mus, marched each with an army, through the territory of the Marsi and Peligni (the modern Abruzzi), and encamped near Capua, in front of the Latin and Campanian united forces. Here Manlius gave a dreadful instance of Roman severity, in causing his own son to be beheaded for having engaged in a skirmish with the enemy contrary to the order of battle. The decisive battle took place on the plain near the case of Vasuvius, and it was one of the hardest fights in which the Romans had ever engaged, for, as Livy observes, in giving a description of the order of battle (vii. 8), the Latins were in every respect like the Romans; so much so like them, that it more resembled a contest among countrymen and relatives than a fight between strangers. The 'hostis,' or first line, of the Roman left wing, composed of the veterans of the war against the Latins, and fell back upon the second line, or "principes," when, at this critical moment, Decius, devoting his life to the Di Manes for the safety of his country, and mounting his horse, rushed into the midst of the Latin ranks, broke through their first line, and at last fell covered with wounds. The Latins, though somewhat confounded by this desperate onset, continued to fight bravely, and pushed forward their triarii, or third line, whilst the consul Manlius kept back his third line, kneeling and concealing in the rear, as a last reserve. When he saw the whole Latin force engaged and already breaking through his line, he ordered his reserve to attack the enemy. 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Roman citizenship, wholly or in part, with or without the suffrage *suffragium*, for this is not always stated by the historian. The Latins, after that epoch, are no longer mentioned as socii, but distinguished from the genuine Romans as being 'Latini nominis.' It would appear however from some passages of Cicero, that in course of time the Latins were allowed to resume most of the rights which had belonged to them by the Cassian treaty, and that they continued to elect their own municipal magistrates.

During the second Punic war Hannibal tried to work upon the feeling of dissatisfaction which he knew must exist in the breasts of many of the Latins, as well as other nations of Italy which had been conquered by Rome; and accordingly at the battle of Thrasierre he separated the Latin and Campanian from the Roman prisoners, and released the former without ransom. The Latins however, unlike the Campanians, Samnites, Hirpini, Lucanians, and others, who went over to Hannibal, remained faithful to Rome, whose armies were repeatedly recruited among them during that long and fearful contest. This loyalty of the Latins, and the policy of confirming them in it, seem to have made an impression on the minds of some of Cicero's contemporaries, as we find them proposed in that nation in the fifth year of the war to select two senators out of each Latin town to fill up in the Roman Senate the place of those who had fallen in battle. But most of the fathers, and especially L. Manlius, a descendant of Tarquinus Priscus, opposed the measure. It was a similar nature, exclaimed against what they considered as an indignity; and Fabius Maximus put an end to the question by declaring that it was the most dangerous cord that could be touched at that time. The faith of the allies of Rome stood over so precarious a tenure, and that the very recollection of such a subject having been agitated in the Senate ought to be obliterated and buried in secrecy in the bosom of each senator.

The Latins in general were against this, and in the same independent condition, without the rights of citizenship ("sine civitate iure"), until the breaking out of the Social or Italian war. The tribune Livius Drusus proposed that the free Roman citizens should be extended to them, as well as to the other nations of Italy, which had formed treaties of alliance with Rome. Drusus however was murdered, and his motion was dropped for a time. But when the Marsi, Samnites, Peligni, Campanians, and Lucanians rose in arms, and constituted themselves into a confederation, of which they made Corfinium the capital, and after they had defeated several Roman armies, the consul L. C. Caesar (b.c. 91) advised and obtained the passing of a law which gave the Roman franchise to all of Italy which were allies of Rome and had remained faithful in that emergency. This franchise, or civitate, is stated accordingly to have been granted to the 'socii,' or allies, who had furnished their contingents, and to those who were mentioned originally from their state. By this grant, the freemen of the Latin towns were placed so far on a level with the Roman citizens, as to enjoy the full Roman franchise, to be admitted into the Roman rustic tribes, have votes, and be eligible to public offices. Thus the distinction between the Romans and the real or original Latins was obliterated, but another class of nominal citizens sprung up in the following year, in the consulship of C. Pompeius Strabo, when the Latinitas, or right of Latin citizenship, was given to the towns of Transpadane Samnium. This leads us to speak of the *Ius Latii*, or 'Ius Latium', as distinguished from the Civitas, or *Jus Civium Romanorum*.

LATINUM JUS, JUS LATII, LATINITAS, sometimes also called simply *LATIUM*, was one of the various civil conditions under which the inhabitants of the Roman world were classed and comprised. The primary distinction of persons was that of freemen and slaves. A slave had no rights, and therefore could have no Roman citizenship. But the possession of his master, the same as his cattle. Freemen were divided, according to the Roman polity, into 1. Cives Romani; 2. Latini; 3. Perigrini, or aliens. The Roman citizen lived under the civil law of Rome, which determined his rights and duties, and might aspire to the offices and honours of the Roman state.

The second civil condition in the Roman state was that of 'Latini', or those whose rights and duties were defined by the 'Jus Latinum.' They formed a considerable and important class, and ranked next to the Roman citizens in privilege. This class however was differently formed, and enjoyed different rights at various periods of the history of Rome.

The hold inhabitants of Latium, whilst they continued federati or confederates of Rome under the Cassian treaty, enjoyed several of the rights of Roman citizens. The rights of a Roman citizen were of two sorts, private, or civil, and public, or political. The principal private rights were the jus liberi natalis, by which the Roman citizen was master of his own person, could not be arbitrarily imprisoned nor punished, except after legal trial, and could not be scourged on any account; the jus connubiorum, by which he was enabled to contract a legal marriage with a free woman, and the jus patronatus, by which he was enabled to hold sequestered property, and by which his children were also Roman citizens; the jus patriae, the consequence of the connubium, which gave him that unbounded authority over his children which was peculiar to the Roman law, and which no other people were possessed of (Gaius, i. 55; Justinian, *Institutio*, i. 9); the jus legum dominii, which included the ability of acquiring property, by testamentary gift, marriage, or bequest; and the jus servorum, by which he was enabled to bequeath property by will.

The chief public or political rights were, the jus census, or having his name registered in one of the tribes and centuries, or having his name inscribed in the so-called roll of Roman citizens; the right of iustitiae, the right to the jurisdiction of the state; the right of appeal to the comitia from the sentence of the magistrate; and the jus honorum, by which he was enabled to aspire to any of the dignities in the state. New freemen, or persons who were not possessed of *census*, and were not able to aspire to the dignity of senator, were also entitled to the rights of Roman citizenship, and did not lose the right of having the state, their persons were not under the protection of the Roman law, they might be sent away from Rome, and they and the other Italian socii were sent away repeatedly, among other instances, under the consulsip of Lucius Crassus and M. Turpilius Caecina, in the year b.c. 96, just before the beginning of the Social war, to which that expulsion greatly contributed. It would seem however that all the towns of Latium were not on the same footing in these respects, and that some of them had adopted of their own choice certain Roman laws, and by so doing had become, according to the Roman legal term, 'populi fundi,' that is, had entered within the pale of those particular Roman laws, and were excluded from considerable portions of their privileges (Cass. *Pro Balbo*, viii.). Whether the Latins confederated had the connubium, or right of intermarriage, has been questioned by some; Niebuhr however (vol. ii. 'On the Franchise of the Latins') maintains that they had. As for the public or political rights of Rome which many defended what was called the 'civitas,' the Latins were not 'censis' at Rome, and they could not aspire to the honours and offices of the Roman state, except those who had previously filled certain municipal offices in their own town for a time, after which, by transferring their domicile to Rome, and inscribing their names in one of the tribes, as under other conditions, might obtain the rank and position of an important service to the Roman state. With regard to the right of suffrage, it is not clear under what conditions the municipia of the Latins enjoyed it, but it appears that they came at times to vote at Rome on certain...
tained occasions, but then they had no fixed tribe, and voted in a tribe which was drawn by lot, and they might, as it has been said, vote twice, as becerto the day of voting, as was done by the consul Virgilinus, the colleague of Spurius Cassius. In the year b.c. 123, they came to Rome to vote in favour of the laws proposed by the Senate, which confirmed the limits of their territory, and they were admitted into the Gracchi, and voted immediately. The civil condition of the Latins, or, as Ulpianus, was, therefore inferior to that of the Romans, but next to it in importance, and a kind of intermediate step towards obtaining it. They had, even at Rome, some advantages over the Peregrini, or aliens, who were domiciled in that city.

In the reigns of Constantine I and his successors, they were admitted to Roman citizenship, or at least to the dignity of Roman citizens, in most parts of the empire. In the fourth century, the whole of Italy was divided into several provinces, and the administration of Roman laws was committed to the care of governors, who were usually chosen from the ranks of the senators. These governors were responsible to the Roman Senate, and their decisions were subject to the approval of the Senate. They were also required to regularly submit reports to the Senate on the condition of the provinces under their control.

The administration of Roman laws in these provinces was based on the principles of jus gentium, which provided a framework for the regulation of international relations. This system was designed to ensure that all territories under Roman control were governed according to a set of universal laws, rather than according to local customs and traditions. As a result, Roman law became a unifying force in the Roman empire, facilitating the integration of new territories and peoples into the Roman political and legal system.

However, the application of Roman law in the provinces was not always consistent or equal across all regions. There were significant variations in the degree to which Roman law was enforced, and in the extent to which local customs and traditions were allowed to continue. These variations were influenced by a number of factors, including the political and social context of each region, the extent of Roman control, and the compliance of local authorities with Roman legal principles.

In conclusion, the administration of Roman law in the provinces was a complex and multifaceted process, reflecting the tension between the desire for uniformity and the need to accommodate local customs and traditions. While the ideal of a uniform legal system was pursued, the practical limitations of governance meant that significant variations existed in the implementation of Roman law across the empire.
mf of the Allia, so as to include the towns of Momentum and Crustumeria. At the time when the Latins entered into a foedus, or league, with Rome in the consularship of Spurius Cassius and P. Cominius, we find the Latin cities or townships forming the Latin nation enumerated by Dionysius as follows: Ardea, Areca, Bucentum, Corni or Cornecu, Cumae, Felix, Ficana, Foce, Corni, Fortinum (perhaps Foretii), Gabii, Laurentum, Lanuvium, Lavocum, Lucumum, Norba, Prænesta, Pedum, Quenquetulum, Satrium, Scapta, Setia, Telene, Tiberius, Tirinia, Titrata, Tresagins, Trivia (Neronea, Hist. of Rome, vol. ii, note 21). At that time therefore the Latin boundaries had encroached on the volcanic territory, and extended far eastward as a line beginning from the sea-coast beyond Ceresii, ascending northwards along the country of the Uenae, and including that part of the Apennine Montes on which Setia, Norba, and Corna stood. Antium, although encompassed by the Latin territory, did not belong to it, and was at war with Rome at the time of the Cassian treaty between Rome and the Latins. The sites of several of the above towns are unknown; Carmenta and Telerea stood near Labicum, Corbo was on Mount Aldigii, and Scapta near Velitrae. Six centuries later Pliny (Hist. Nat., iii), in giving a list of the townships of the Prisci Latini, or of the towns not located by Dionysius to the north of the Sarnus, included the following territories: communities which had become extinct long before his time, without leaving any traces behind, 'interire sine vestigibus,' namely: Satricum, Pometia, Scapta, Pitulum, Praeneste, Tatifia, Cornii, Cusvetani, Crustumerium, Ameriola, Medullia, Cornicum, S. Galatina, and Paleatine (before Rome was built), Antipolis, which stood on Mount Janiculum, Antonae, Camerium, Collatia, Ami- tinum, Norba, Sulmo (at the foot of the Lepini, between Norba and Sulmo), Formia, the last of these, and the above the sacrifices on the Alban Mount—the Albenses, the Albani, Absolani, Acieseni, Abolani, Bubetani, Bolani, Cusvetani, Corioli, Fidenates, Foretii, Hortenses, Latini- enses, Longulani, Manastri, Macerati, Mutavictenses, Muniesi, Nuniminseni, Officeiani, Oculani, Pedani, Paliani, Querquetulani, Sicani, Sisones, Tolerienses, Tuttis- enses, Vitimallierai, Vencesani, Venetulenses, Vitellones. All these, says Pliny, were at one time 'clara oppida,' towns of some name and in an island Latium. Independent of these there were still existing in Pliny's time—Ardea, Antum, Anicia, Alba Longa, Apulia, Algidum, Aurunea, Artona, Bovilla, Cora, Ceresii, Corbii, Fabium, Ficulnus, Forum Appii, Gabii, Laurentum, Labicum, Lanuvium, Lanuvius, Muf- gilla, Momentum, Norba, Ostia, Prænesta, Setia, Suevia, Pometia, Troa, Tibur, Tusculum, Ulubra, Velitrae, all towns of the old Latium. It is surprising to see such a number of towns (and the existence of most of them is of historic importance), having all within about 50 miles length from the Tiber to Ceresii, and about 30 in its greatest breadth from the Sabine Hills to the sea, a considerable part of this tract being even now occupied by marshes or by a barren soil of volcanic formation.

It was the rise of the Volsci, the Hernici, and the Aurunci, the name of Latium was extended to the whole country inhabited by these three people, in addition to the country of the old Latins, and this was called Latium Novum. It extended to the eastward as far as the Liris, and included also a district on the left bank of that river, which once belonged to the Volsci, with the towns of Arpium, Aquinnum, Interamna, Atina, and Casinum. The other town of this new Latium were Piernum, Tar- raca, Tusculum, Ficana, Castre, Tusculum, Ficana, in the country of the Hernici, Anagnia, Ferentum, Frusino, Verula, Aletrium, Signia, Tregillum, and Fabrater. Latium was in its extended sense bound by Cam- pania and Samnium to the east, by the Sabini to the north, the Tiber to the west, and the sea to the south. Under Augustus, Latium and Campania constituted the first of the eleven regions into which Italy was divided by that emperor.

The physical geography of Latium and the actual state of the country, at the time of the Parthian war under Caesar, is the easternmost part of the new Latium, namely, the districts of Gatta and Sorn, which belong to Laboro, Terra di. (Corradino and Volpi, Vetus Latium Profunum, 10 vols,. 4to, d', Argentine Antiqua; Vetus Latium; Petit Radel; Madame Dionigi; Dodril; Sir W. Goll.)

LATREILLE, PIERRE-ANDRÉ', a French naturalist, particularly distinguished in the department of entomology, was born at Brive on the 29th November, 1752. Having shown an early taste for the study of natural history, and for literary pursuits generally, the Baron D'Espagnoe, governor of the Hotel des Invalides, brought him to Paris in 1778, and placed him in the college of the Cardinal Lemoine, to be educated for the church. Here he formed a friendship with the Abbé Hesse, and was admitted to the college. In 1786 he retired into the country, where he devoted all his leisure time to researches on insects. On going to Paris two years afterwards he formed an acquaintance with Fabricius and M. Bose. Some carnivorous plants which he presented to Lamark procured him also the friendship of that great naturalist, whom he afterwards assisted in his lectures, and succeeded as professor in the Museum of Natural History. A memoir on the Maladies of France was read before the Acts of the Society of Natural History at Paris, procured him, in 1791, the title of correspondent to this Society, and, shortly afterwards, of the Linnean Society of London. At this period he also wrote some of the articles on entomology in the Encyclopédie Méthodique. Hitherto he had only devoted a small portion of his time to scientific pursuits, not allowing it to interfere with the duties of his profession; but the Revolution, which created so many re- dogs, and brought him into contact with those who had nothing to study which he had only cultivated before as an amusement.

Being an ecclesiastic, he was devoted to persecution, and twice condemned to banishment, but he escaped this punish- ment through the influence of his scientific friends. Return- ing to Paris in 1798, he became a member of the École Normale, and was appointed to a chair in the Institute; and through the recommendation of Lap- pêle, Lamark, Cuvier, and Geoffrey St. Hilaire, he obtained employment in the Museum, where he was appointed an assistant, and afterwards placed to the care of insects. When the nation came blind, Latreille was named assistant professor, and he continued Lamark's lectures on the invertebrate animals till that naturalist's death, in 1829, when he filled the vacant chair in the Museum.

The number of his literary productions is very consider- able: 'Le Magazin Encyclopédique de Millin; the 'Annales' and the 'Mémoires du Muséum,' and the 'Bulletin de la Société philomathique,' contain many papers and observa- tions by him. In 1802 he published the 'Histoire des Fourmis,' which also contained several memoirs on other subjects, as on bees and spiders. Among his publications there is one which has been highly spoken of, and which differs in its object considerably from his other writings: this is a dissertation on the expedition of the consul Sue- tonius Paulinus in Africa, and upon the ancient geography of that country. His memoirs upon the sacred insects of the Egyptians, and on the general geographical distri- bution of the animal kingdom, are considered as forming a considerable part of his productions. His 'Considérations générales sur l'Ordre naturel des Animaux composant les classes des Crustacés, des Arachnides, et des Insectes,' and the third volume of the Régne Animal of Cuvier, are only extracts, more or less modified, of this work. The system by which the insects are arranged in the Régne Animal (the entomol- ogical part of which, it must be remembered, was written by Latreille, though it all stands under the name of Cuvier) was adopted by the Academy of Sciences, and is the most perfect in its details that has yet been given to the world. It soon superseded that of Fabricius. 'It possesses the advantage of being founded on a consideration of the entire structure of these animals, and hence gives us the first instance, in the degree of the animal of classification.' In Sonnini's edition of Buffon, Latreille has given a general history of insects; he also wrote a 'Histoire des Suinaires,' and many other works.
LATROBITE occurs crystallized and massive. Primary forms a doubly oblique prism. Cleaves parallel to the primary planes. Fracture uneven. Hardness, 5 to 6. Crystals glassy, but is searched by felspar. Colour pale red. Lustre vitreous. Translucent, transparent. Specific gravity, 2.72 to 2.8. Heated on platinum by the blow-pipe, gives a globule of an amethystine pale red colour; with phosphoric salt gives a yellow globule with a nucleus of silica.

**Massive Variety.—** Amorphous; colour pale red. Found at Amiskok Island, Labrador, and in Finland.

**Analysis by Gmelin:**

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**LATUS RECTUM.** [ELLIPSE; HYPERBOLA; PARABOLA]

**LAUD, WILLIAM,** was the son of a clothier at Reading in Berkshire, where he was born on the 7th of October, 1373. Laud was sometimes reproached during his prosperity with the meanness of his birth, which however was not always the case. One of that of most of the churchmen of his time, and indeed of preceding times; for a man who himself was mainly instrumental in rendering the Church of England the resort of men of good or noble family as a profession. In 1663, he received his early education in the Free Grammar-School of Reading, from whence, in July, 1588, he was removed to Oxford and entered a commoner of St. John's College, where he successively obtained a scholarship and fellowship.

Even at the university Laud had the character of being 'as least very Popishly inclined.' Heylyn informs us that Dr. Abbot, master of University College, who was afterwards Archbishop of Canterbury, 'so openly branded him for a popish, or least Popishly inclined, that it was almost made an heresy (as I have heard from his own mouth) for any one to be seen in his company, and a misprision of heresy to give him a civil salutation as he walked the streets.'

In 1633 Laud had been appointed chaplain to Charles Lord Mountjoy, Earl of Devonshire. Laud, who held marriage to be an indissoluble sacrament, who raised a flame in Scotland by enforcing this point, and who censured in the highest terms, and even imprisoned for adultery (which imprisonment he himself allows in his diary to be more than the law allowed), nevertheless performed the rites of marriage between his patron and Lady Rich, whose husband was then living, and who had previously carried on an adulterous connexion with Lord Mountjoy.

On the death of the earl of Devonshire in 1635, Laud was appointed one of the chaplains of Neile, then bishop of Rochester, from whom he obtained considerable church preferment. His patron Neile, on his being translated to the see of Liegefield, and before giving up the deanery of Westminster, which he held in commendam with his bishopric of Rochester, obtained for him the reversion of a prebendal stall there.

In 1638 he became president of St. John's College, Oxford; and it was now that Laud began seriously to turn his attention towards the church.

In 1616 the king conferred upon him the deanery of Gloucester, having some time previously appointed him one of his chaplains in ordinary. In 1618 he accompanied King James into Scotland for the purpose of modelling the Scottish church after the fashion to which he and Laud were desirous of bringing the church of England. On the 25th of July, 1620, he was installed prebendary of Westminster, and on the 18th of November, 1621, consecrated bishop of St. David's. It was expected that Laud would have been made dean of Westminster in the place of Williams, who had been sworn privy-counsellor, and nominated to the see of London, received on the 16th of July the custody of the Great Seal on its being taken from Bacon. But Williams possessed such interest at court, that when he was made bishop of Lincoln he retained his deanery in commendam, together with the other preferments which he held at that time, viz., a prebend residuary's place in the cathedral church of Lincoln, and the rectory of Walgrace in Northamptonshire; so that, observes Heylyn, 'he was a perfect diocese within himself, as being bishop of London, dean, prebendary, residuary, and parson; and all these at once!' besides being at the same time keeper of the great seal of England.

Laud says, in his 'Diary,' that he resigned his presidency of St. John's College, November 17th, 1621, 'by reason of the straitness of the statute which I will not violate, nor my oath to it under any colour!' yet the king was prevailed upon to leave him to hold it; but in truth avarice was never one of Laud's vices.

On May 24, 1622, the conference between Laud and Fisher the Jesuit took place. It was held at the Tower, the marquis of Buckingham, who shortly after, as Laud himself informs us, was pleased to enter upon a near respect to him, the particulars of which were not for paper. On the 4th of June he became 'C.' to Buckingham. It is thus he writes it in his 'Diary.' Some call it chaplain; others, among whom is Heylyn, confessor. It is certainly not usual for a nobleman even of the highest rank to have a chaplain for his chaplain.

Laud was a great dreamer of dreams, and though he repeatedly affirms the contrary, he evidently attached much importance to them. The following extract from his 'Diary' is a specimen:—December 14, Sunday night, I did dream that the lord keeper was dead; that I passed by one of his men that was about a mourning for the lord keeper's death; say his lower lip was infinitely swelling and fallen, and he rotted already. This dream did trouble me.'

The lord keeper (Williams) had become jealous of Laud's growing favour to him, and the minister of the state was not insensible in betraying this jealousy. 'January 11, I was with majesty to show him the epistle that was to be printed before the conference between me and Fisher the Jesuit, on March 24, 1622, which he was pleased to approve. The king brake with me about the book presented that the lord keeper was signed of the church. He was hard of belief that A. B. C. was the author of it. My lord keeper met with me in the withdrawing-chamber, and quarrelled me gratis.'

Laud's rise was rapid. In 1629 he was made bishop of Bath and Wells, and dean of the Chapel Royal. On March 5th of this year he has the following entry in his 'Diary':—'Dreaded that I was reconciled to the church of Rome.' In 1627 he was made a privy-counsellor. On the 13th of July, 1628, he says, 'My lord keeper was with me.'

Laud commenced his career of statesmanship with a zealous persecution of the Puritans, or religious sectarians. Leighton, a physician, having published a book against the bishops, called 'Sion's Plea,' was sentenced by the court of Star Chamber to have his ears cropped, his nose slit, his forehead stigmatized, and to be whipped. Between the sentence and the execution of it Leighton escaped out of the Fleet, but he was retaken in Bedfordshire, and underwent this atrocious punishment.

In 1630 Laud was chosen chancellor of the university of Oxford. In 1632 he obtained for his creature Francis Windebanke the office of secretary of state; and in the same year Dr. Juxon was, he says in his Diary, sworn dean of his majesty's closet; that I might have one that I might trust near his majesty.' Heylyn remarks, on the above proceedings, 'So that Windebanke having the king's ear on one side, and the clerk of the closet on the other, he might presume to carry his tale well told between them; and that his majesty should not easily be possessed with anything to his disadvantage.'

On the 16th of August, 1633, Laud was appointed archbishop of Canterbury; he has the following entry in his 'Diary:'—'August 17, Saturday. I had a serious dream.'
LAUD.

In answer to Wentworth, after Lauds earl of Strafford, exhibit a more faithful mirror of the man's character than is anywhere else to be met with. His Diary, though it bears sufficient impress of his peculiar spirit, discloses his character but imperfectly, particularly as there are many apparently important facts only hinted at, and names of which only the initials are given. The history of his troubles and trial, by himself, and the voluminous life by Heylyn, expressly written to vindicate his conduct and character. In perusing the letters between Laud and Wentworth the reader is less likely to be presented with a confidential correspondence than with the letters of Strafford, along with many indications of a violent, arbitrary, overbearing temper, exhibit evidence of strength and sagacity, and are of great importance. Of the letters of Strafford, much of it is preserved in the preface of Heylyn's life of Wren, near which it is situated, but with courage and fairness it may be said the highest point of its prosperity. Laud thus records the event in his Diary. - March 6, Sunday, 1634, Lord bishop of London, made lord high treasurer of England: no church could have had it since the time of Henry VII. I pray God bless him to carry it so, that the church may have honour, and the king and the state and service and contentment by it: and now if the church will not hold themselves up under God, I can do no more.

The following passage from a letter of the Rev. G. Gareard, master of the Charterhouse, a correspondent of Strafford, presents a lively picture of the state of feeling then prevalent among the clergy. It shows how near having an altogether ecclesiastical government England then was: -

"The clergy are so high here since the joining of the white sleeves with the white staff, that there is much talk of having a bishop, Dr. W. Bancroft, a chancellor of the exchequer, Dr. Bancroft, bishop of Norwich, an archbishop of Canterbury, Dr. W. Bancroft, bishop of Oxford, but this comes only from the young fry of the clergy; little credit is given to it, but it is observed they swim mightily about the court." 

In a letter of 6th July, 1635, Laud thus speaks of the raising of ship-money: - "As the last year there was money raised upon the ports, according to antient precedent, for the setting out of the navy, which is now at sea, and there God beareth witness, are now going to sea against the next year; and because the charge will be too heavy to lay it upon the ports, or maritime counties only, therefore his majesty hath thought fit, a partita ratonis, and for the like detraction that he intends to do it to all counties and corporations within the dominions of the king, and Wales; and so the navy may be full, and yet the charge less, as coming from so many hands. I pray God bless this business, for if it go well, the king will be a great master at sea, and in these active times we, by God's blessing, may be the more safe at land." How effectively this money was applied to its ostensible object, the defence of the coasts and the putting down of piracy, may be gathered from the following passage in a letter to Wentworth during the following year: - "The mischief which the most Christian Turks did about Fly

LAUDANUM. [Opium.]

LAUBERG, or SÃœR-LAUBERG, a duchy in Germany subject to the king of Denmark, is situated on the right bank of the Elbe with lat. 54° 54' N., and 10° 3' and 11° 5' E. long. It is bounded by the territories of Hanover, Mecklenburg, Holstein, Lübeck, and Hamburg, and has an area of 492 square miles, with a population of 32,000. It is occupied by 5,000 inhabitants professing the Lutheran religion. The face of the country is diversified, the soil is in some parts very fertile, while in others there are tracts of sand or extensive heaths; there are also large turf-moors and considerable forests, of which the largest is
that called the Sachsenwald. The rivers are the Elbe, Bille, Stecknitz, and Trave, which afford ample means for inland trade; and the Stecknitz Canal, between the Elbe and the Trave, opens a communication with the Battle at Lübeck. The most considerable are those of Schanze and Ratzeburg. Its natural productions are corn, flax, timber, turf, horned cattle, sheep, poultry, fish, &c., more than sufficient for home consumption. The inhabitants are chiefly engaged in agriculture and the carrying trade both of goods and water; and their exports are, besides their

smallest

marketing, especially of timber and fuel. They have no

manufactures.

Lauenburg had formerly its own dukedom, whose family became extinct in 1533, on the death of Duke Julian Francis. It was the last remaining claim of the House of Brunswick, Duke of Brunswick-Lüneburg, a portion of the dominions of Henry the Lion, to a convention concluded in 1639 between the dukes of Brunswick-Lüneburg and Lauenburg, and being incorporated with Brunswick-Lüneburg subsequently formed part of the electorate of Hanover. In 1865 it was taken possession of by the Emperor Napoleon, and in 1816 incorporated with the new French department of the Mouths of the Elbe. In 1816 Lauenburg was restored to its former sovereign George III. as king of Hanover; but by the rather complex arrangements subsequent to the peace of 1815, Sweden, which had deprived Denmark of the kingdom of Norway, ceded Swedish Pomerania to Denmark, and was itself annexed by the context of Berlin. The duchy of Lauenburg, Hanover, however retaining the small tract on the left bank of the Elbe and the detached bailiwick of Neuhans on the right bank (making together 130 square miles, with 16,000 inhabitants), Prussia then exchanged it for the entire of Swedish Pomerania, but as the latter province was more valuable, Prussia paid to Denmark two millions of Prussian dollars. It also paid a debt of 600,000 Swedish bank dollars, which Sweden owed Denmark, and paid besides 3,500,000 dollars to Sweden.

The chief towns are Lauenburg (3300 inhabitants) on the Elbe, at the mouth of the Delvenau or Stecknitz Canal, by which goods are conveyed from the Elbe to Lübeck; Ratze-

burg, a handsome city in the face of the Elbe; Ratzeburg Lake, which has extremely fine views over that great lake; it is connected with the left bank by a causeway, and with the right by a bridge 1100 feet in length (population 2000 inh.); Mollon on the Stecknitz, the burying-place of the famous Till Eulenspiegel, of whom various relics are still shown there.

SHARP. [CAERMAR ThIN SHIRE]

LAUGHTER, as physically defined, is a peculiar agitation of the muscles of the face and neck, involving a movement of contraction and relaxation of muscle suddenly and irresistibly, affects at once the face and throat, the thorax and the abdomen. Although this physical phenomenon is usually more or less loud, it is sometimes almost imperceptible, and only traceable by a slight muscular vibration. In these cases the trachea and larynx are distinctly visible. The corporeal phenomenon is so simple, the nature of the mental state, and of the object by which it is produced, is more complicated and debatable. On this subject a great variety of opinions has prevailed. Among the ancients there is more of unanimity than among the moderns. According to Aristotle, the ridiculous is some error in truth or propriety, but at the same time neither painful nor pernicious (t' yap veyiOicv avp crrov aicaiatv ei aSv apecv avro yonavov rov eopov). Nearly corresponding in meaning is the view of Cicero, who while he declares that the ridiculous is incapable of any rigorous definition, admits that the chief, if not the sole object of laughter, is that which, without propriety, marks out and exposes an impropriety (licem enim ridiculum vel sola vel maximus quum notat nec designat turpitudinem quanquam non turpiter). De Oratore, 2, 235.) Quintilian considers it to be absolutely indefinable (Amicus ejus rei ratio est, lib. vi, c. 3). At the same time it is greatly improved, it is the middle term, the proper and the deformed constitute the province of ridicule, and affirming that ridicule is near allied to contempt (a deriau non procui abest raio: Ibyt), he approximates to the strong opinion of Hobbes among moderns, according to whom the word of laughter arises from the contemplation of some eminency in ourselves, by comparison with the unimportancy of others, or with our own formerly (Human Nature, ch. ix., s. 13). With Hobbes's opinion, that of Helveticus coincides, who makes pride the source of laughter.

P. C., No. 899.

Beattie and Priestley agree in making the ridiculous to arise out of a misrepresentation or incongruous union of objects; while Lord Kames considers a contrast to be the essence of the laughable. The latter view is adopted by Mendelssohn and J. Paul Richter. In a former (Bede ii, 1. Klein., and exc. Scripten) he makes it to be great contrast between perfection and imperfection, which however must be unimportant and but slightly interesting to us, and must amount to no more than an extravagance or inconsistency. The view of the latter (Richter, 2, p. 143) makes the ridiculous to be the contrary of the sublime, and consequently the infinitely small. Closely coincident with this view is that of Campbell (Philosophy of Rhetoric, bk. i., ch. ii.), who observes that 'ridicule in futility objects hath a

propensity, in solemn and important matters.' Lastly, Kant (Kritik d. Urtheilsbryfïa, p. 225, 2nd ed.) makes the ridiculous to arise from the sudden conversion into nothing of a long-continued and highly-strung spectacle.

According to Shaftesbury (Characteristics; 'Essay on Wit and Humour') ridicule is the test of truth, and he adduces in support of his view the words of Gorgias of Leontini, 'Confound ridicule by seriousness and seriousness by ridicule' (τφτω ον τινος λεπτής χαλκής, τηλ κ και χαλκής σερινής. Arist., Rift., lib. 3, ch. xvii.). In order to adjust the sentence to his own view, Shaftesbury adopts the Latin version, 'seria risu, risum seria dissentire'; it is however clear that the passage is not a contrast, but a passage of ridicule, and it is there recommended an orator to endeavour to remove the impression, which his opponent may have made upon his auditors, by employing a directly opposite style of address. But the maxim of Shaftesbury admits only of a negative application, for ridicule, at most, is only fitted to refute error. In truth however it is not properly levelled at the false, but at the absurd in tenets and opinions. The ridiculous is not any fixed and constant property of certain objects, but it is purely relative and dependent upon the subjectively states and conditions of individual minds. The simplicity and the roar laugh heartily at what scarcely provokes a smile in the educated man and the sage; and on the other hand, much will excite a laugh in the latter, which would not move a child. Suicide, for instance, is a thing not laughable. A gag or a gloomy temperament, that a Democritus will laugh where a Heraclitus would weep.

LAUMONITE occurs crystallized and massive. Primry form an oblique rhombic prism. Clears parallel to all the faces of the primary form and to the diagonal planes. Fracture uneven. Hardness, scratched by carbonate of lime. Colour white, sometimes yellowish and reddish. Streak white. Lustre vitreous and pearly. Translucent. Optics, B3V2. The crystals are very angular, and are formed by exposure to the air, on account of the structure of granular. Massive Varieties amorphous, structure granular.

Gelatinizes in nitric acid. Before the blowpipe swells up before fusion, and gives a white enamel, which, by a continued stream of gas, is converted into a glass, by a single blow.

It is found in Scotland, Ireland, France, Hungary, and Iceland.

Analysis by Guelin—

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
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</thead>
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<tr>
<td>Silica</td>
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<tr>
<td>Alumina</td>
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<tr>
<td>Lime</td>
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<tr>
<td>Water</td>
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LAUNCESTON (also called Dunheved), a corporate town in the county of Cornwall, of which it is usually regarded as the capital. It is pleasantly situated on a steep hill rising from the banks of the Avyer, a few miles above the confluence of that stream with the Tamar, and 210 miles west-south-west from London. The houses are in general mean and irregularly built, and the streets narrow and inconvenient. Within the last few years the town has been much improved, and is now lighted with gas, the expense of which is defrayed by a rate.

Both the assizes for the county of Cornwall were formerly held at Launceston (by virtue of a charter from Richard, king of the Romans), but by the Statute of the nimmer assizes were removed to Bodmin, and in consequence of the new court of assize at the latter place in 1838, and the situation of the county gaol there, both assizes are now held at Bodmin.

The corporate privilege, arising principally from tolls, Vol. XII., 2 Z
markets, fairs, &c., amounted in 1835 to 265l. per annum, which was about sufficient to cover its ordinary expenditure.

Until the passing of the Reform Act the borough had returned two members to parliament continuously from the reign of Edward I., the right of election being vested exclusively in the mayor, aldermen, and freemen. By the Reform Act, Launceton and the adjoining borough of New ort are included in a district, and both together now return one member. Launceton is one of the polling places for the eastern division of the county.

The remains of the ancient castle of Launceton are very remarkable. King, in his Monumenta Antiqua, vol. iii., describes it minutely, and assigns to it the most remote antiquity, on account of its dissimilarity from castles built by the Romans. Saxons, Danes, or Normans.

The church, dedicated to St. Mary Magdalene, is in the diocese of Exeter, and the living, a paid curacy of the net annual value of 116l., was, until the passing of the Municipal Corporation Reform Act, in the patronage of the corporation. It is a very remarkable structure, composed of granite, ornamented with sculptural devices, and curious carved work.

The grammar-school of Launceton was originally endowed by Queen Elizabeth, and subsequently by the duke of Northumberland. In the year 1811 the corporation erected a new school-house at an expense of 1000l., but the first master having absconded, and the second resigned, no new appointment has been made since the year 1821 (Corp. reports, 1835), neither has the revenue been received since that date, in consequence of which the house has been dilapidated and no longer fit to be inhabited. The fees were six guineas per annum, on the payment of which the school was open to the children of any inhabitant. The population of the town in 1831 was 2291, and had increased about 20 per cent. since the census of 1801. (Parliamentary Papers; Gilbert's Parochial History of Cornwall, vol. ii., p. 417; &c.)

LAURACEAE, a natural order of apetalous Exogens, consisting entirely of trees and shrubs, inhabiting the warmer parts of the world, and in most cases aromatic, on which account several are mentioned in works on official plants. The best known species in Europe is Laurus nobilis,

the Sweet Bay, a beautiful evergreen, whose fragrant leaves are commonly employed to flavour confectionery. [Laurus.] Other species of the order are found in the saffrassas, whose bark has great reputation in North America as a powerful sudorifice; Pichurium beus, an indifferent substitute for nutmegs; and finally, not to mention other useful substances, the campour, obtained by the Chincas from the Camphora officinarum by means of dry distillation.

In general it may be expected that the trees of this order are valuable as aromatics and stimulants, although but a comparatively small number has yet been brought into use, and known by the practice of their flowers, which have no corolla, stamens in one or several rows, often in part gland-like and sterile, a simple one-celled superior one-seeded ovary, and especially by the chere, a compound leaf with recurved edges.

LAUREATE, POET, an officer in the lord chamberlain's department of the royal household. The appellation 'laureate' seems to have been derived through the Italian, from the Latin laurus, 'a bay,' in allusion to the ancient practice of crowning poets. Petrarch received the crown at Rome in 1341, and Tasso in 1594. The earliest mention of a poet-laureate in England, under that express title, is in the reign of Edward IV., when John Kay received the appointment. Warton however, in his History of English Poetry, in the annals of poetry, calls the poet-laureate the same officer who, in the reign of Henry III., is styled Ver- sitator regis, 'the king's versifier,' and to whom a hundred shilling was paid as his annual stipend. Ben Jonson was named poet-laureate of England by the King in the reign of Charles I., 1630, the first patent of this office appears to have been granted, which fixed the salary or pension attached to it at 100l. a year, with an additional grant of a tisce of Canary wine from the king's stores. The success of poets-laureate since the time of Charles II. has been—John Dryden, Nahum Tate, Nicholas Rowe, Laurence Eusden, Colley Cibber, William Whitehead, Thomas Warton, Henry James Pye, and Robert Southey. A confirmation was agreed to of 271 for the allowance of 50l. a year, or what is called the laureatate.


LAURINE, an aeric and bitter principle contained in the berries of the laurel; its smell resembles that of laurel oil. It is insoluble in water, and little soluble in cold alcohol, but more so in boiling alcohol in alcohol; it crys- 

tallizes from solution in needles. When heated it melts, and volatilizes without leaving any residue. To sulphuric acid it first imparts a yellow and afterwards a reddish colour; in cold nitric acid it liquefies, and floats upon its surface; it bears considerable resemblance to solid expressed oils, but has not been analyzed; the berries contain only about one per cent. of this substance.

LAURUS, a genus of the natural family of Lauraceae, to which indeed it has given its name. It includes as a species one of the most celebrated trees of antiquity, and until recent times some of the most elegant and useful of the vegetable kingdom, as among them were the yielding the camphor of Japan, Cinnamon, both of China and of Ceylon, Cassia bark and buds, the Malabathrum leaf of the antients, with the less known Cullnian and Sintoc. The camphor is as well as the American Persea, Pichurium, and Sassafras. Most of these are however now placed in distinct genera by the latest authors who have paid attention to the subject, as Nees von Essenbeck and Blume, as will be noticed in the articles dedicated to the different sub- 

The camphor-tree is submitted by all authors to be the Laurus camphora of Kaempfer, now the Camphora officinarum of Nees, a native of Japan and of the province of Fokien in China, and also of the island of Formosa, whence it is brought to Mr. Reeves, the chief portion of the camphor of commerce is brought to Canton. As the wood is said to be valuable, the root, refuse wood, and smaller branches are cut into chips, covered with a little water, and the camphor separated by sublimation. [Camphor.] It is necessary to a thorough knowledge of this camphor to be grown in Borneo and Sumatra by Diphocarpus, or Dryobalanops Camphora.

The kinds of cinnamon are not so clearly settled, as there is both an Indian and a Chinese cinnamon. However there is no doubt produced by Cinnamonum zeylanicum, and the latter by the C. aromaticum of Nees. This cinnamon
MAN. IS OF SUPERIOR QUALITY, AT LEAST AS MUCH OF IT, AND IS PRESENTED TO THE CHINESE TO THAT OF CEYLON, AND SALT TO BE PRODUCED IN COchin CHINA CHEILY IN THE DRY SANDY DISTRICTS LYING NORTH-WEST OF THE TOWN OF FAIFEE, BETWEEN 15° AND 16°N. LAT. MR. CRAWFORD (EMBASSY TO CHINA, 1778) INFORMS US THAT IT WAS THE TEN VARIETIES OF IT, AND THAT IT IS NOT ONLY LIKE THAT OF CEYLON, BUT MORE EFICACIOUS. THE DR. A. T. THOMSON GIVES THIS AS ONE OF THE CHARACTERS BY WHICH CASSIA MAY BE DISTINGUISHED FROM CINNAMON. IT IS POSSIBLE THAT SOME OF IT MAY BE IMPORTED INTO EUROPE, AND SOLD UNDER THE NAME OF AMBOYNA, AND ALSO A PRETEND AND DARE TO PASS FOR IT. THE BANK OF THE SHOPS IS ONLY A CERESE CINNAMON OBTAINED FROM THE THICK ROOTS OR LARGE BRANCHES OF THE CINNAMON-TREE.

Cassia buds, or Flores Lauri Cassiae, are the dried receptacles of some species of this family, of course, and are supposed to be the Cassia obtusifolia, or Cassia longispinosa, native to Loureiro, and is named C. Loureiri by Nees. It is a native of Cochinchina towards Laos, and of Japan. It has sometimes been doubted whether the substances we now call cinnamon and cassia are exactly the same things as those to which the antients applied these names. It is very certain that the substances which formed such highly esteemed articles of commerce must have possessed some remarkable physical and sensible properties not common to the plants of which they were formed. Probably the most conspicuous in the products of the tropical zone, and found probably in most of the substances which the antients obtained from the East, at least disregards has described them all together. It would be difficult to show even with curiosity what the substances which would equally well answer the antient descriptions, without going still farther east. The Greek name of cinnamon is κενναμός, which Herodotus says his countrymen used of the Swiss boiled cinnamon, and we know, is κινναμόν. It is remarkable that the Malay name is kuymanis, which Mr. Marshall says is sometimes pronounced as if written hauan-mans. By the Hindus, cinnamon is called das cinchoma, indicating that they obtained it from the Philippines. Or, as the Frenchman, we lately proved that there was commerce by sea with China at a very early period, and, as is still more remarkable, that the navigators were Hindus. This notion was derived from the written Cilicia, or Colita, said to be derived from kalit, bark, and lacone, in some measure resembles Cassia. It is one of those which has been known in Europe since the seventeenth century, but has been little used in modern times, though Blume describes it as possessing remarkable properties in curing diseases. Analyzed by M. Schloss, it was found to yield a resin, a volatile oil, and a bitter extractive substance. A volatile oil obtained from it in Amboyna is used as a stimulant, according to Labillardière. It was formerly employed in Europe as a stimulant; it is used in cases where cunning remedies are indicated. The tree yielding it is native of Amboyna, and is called Cinnamonum Ciliciam by Blume. There is another variety, now alone remains in the genus Laurus, and is the L. nobilis of Linnaeus, a native of the north of Africa and south of Europe, and of Asia; at least it has been so long naturalized in those countries that it would be difficult to ascertain whence it was originally introduced. It is the Lapect of the Greeks, and is known to the Arabs by the name ghaf, with zafas as its Greek synonyme. The berries are ever found in Indian bazaars by the name hubul ghaf.

The Bay-tree attains a height of 25 feet or 30 feet, and is cultivated in gardens, not only on account of its elegant appearance, but also for the aromatic fragrance of its leaves, which are evergreen, lanceolate, wavy on the margin, and quite smooth. The flowers are small, four or five clustered together in the axils of the leaves, of a yellowish-white colour, and dotted. The fruit is small, ovate, dark purple coloured, and a little succulent. It is endowed with aromatic properties as well as the leaves, whence both have long been used in medicine as stimulants and carminatives, because they are powdered, and applied to the body retaining a portion of the volatile oil, has a fragrant smell. The term Balsam has by some been supposed to be derived from the former practice of crowning candidates for honours with bay-leaves and berries, whence the terms bucculenters and bucculaires.

LAUSANNE, the head town of the Canton de Vaud, in Switzerland, is situated about a mile and a half half of the northern shore of the Leman lake, on three steep hills, divided by deep ravines, and which are projections of the ridge of Jorat, on the central high land of the Canton de Vaud. The highest of these ridges, upon which the old cathedral is built, is 500 feet above the lake, and about 1700 above the sea. The situation of Lausanne is peculiar, as the streets are mostly narrow, very steep, and ill-paved. The cathedral, a vast Gothic structure of the eleventh century, is the handsomest in Switzerland, is adorned with a lofty clock-tower, and also a spire, alone 371 feet high. St. Francis is also a very old building, and is memorable for the council assembled there in 1439, in which Felix V. solemnly resigned the papacy in order to restore peace to the Western church. [AMADÉN VIII.] The castle, formerly the residence of the Bishops of Lausanne, is a large and spacious government-house, and the legislative council of the canton assembles in one of its halls. The other remarkable buildings of Lausanne are—1. the college, or academy, which contains the various classes of belles lettres, theology, and law, the normal school, or school for teachers, the cantonal library, with 33,000 volumes, the library for the students, and a museum containing collections of mineralogy, botany, zoology, &c.; 2. the penitentiary, established in a modern palace, about the year 1805; 3. the fine new building of the charity-schools, which are possessed of a capital of about 10,0000, sterling; 4. the casino, or club-house; 5. the old episcopal palace near the cathedral, which now contains the hospital, the prisons, and the elementary school knowledge to the children.

At the census of 1835 Lausanne contained 12,030 inhabitants, exclusive of the numerous visitors of all nations who constantly resort to it. The bulk of the inhabitants are manufacturers of various kinds. There are about 4000 independent income, about 200 shopkeepers, 400 journeymen labourers or mechanics, 1300 servants, 150 individuals employed under government, 98 inns and public-houses, and about 30 factories of various kinds, tanners, spinners, paper-makers, printers, lithographers, &c. Some trade is carried on in wine, which is the staple produce of the district. (Leresche, Dictionnaire Geographique de la Suisse.)

The environs of Lausanne are delightful, on account of the variety of sites, the richness of the vegetation, the numerous fine country-house with which the neighbourhood is studded, and the splendid scenery embracing the whole basin of the lake, the Alps of Savoy, those of the Valais, and the chain of the Jura. The view of the lake is very pleasant, and easily accessible to strangers. A rapid descent of little more than a mile leads from Lausanne to the village of Ouchy, on the shore of the lake, where the steam-boats from Geneva and Villeneuve daily put in. The house and garden in which Gibbon wrote the greatest part of the 'Decline and Fall' are still shown at Lausanne. Gibbon's library, of more than 2000 volumes, many with marginal notes in his own hand, which had remained at Lausanne ever since Gibbon's death, was purchased, when most of the books were purchased by Englishmen. [VAUD, CANTON OF.]

LAUSITZ, or LUSATIA. UPPER AND LOWER, formed, before the partition of which we shall presently speak, a margravate, and extended from 50° to 21° 15' N. lat., and from 13° 20' to 15° 15' E. long. It was bounded on the north by Brandenburg, on the east by Silesia, on the south by Bohemia, and on the west by Saxony. The area was 4336 square miles, and had an annual produce of inhabitants. The Upper Lausitz is the greater portion of the margravate, its area being 2239 square miles. The surface is in general a sandy plain. Along the southern frontier runs a mountain-chain called the Wolsche Kamm, which is connected with the car with an abrupt and narrow ridge, which descends, from the height of 1300 feet above the sea, to the west by the Erzgebirge. The ridge of this chain, which properly belongs to Bohemia, is the greatest elevation of Upper Lausitz. The rock is granite.
and porphyry, frequently interrupted by basalt; only on the southern side there is sandstone. Towards the north the country declines into the sandy plain. All the rivers rise in the above mountain-chain, and flow northwards to Brandenburg and Meissen, or eastwards towards Silesia. They form the Black Forest, which receives the Schwarzwasser, the Spree, and the Neisse, with their numerous affluents. The first two flow into the Elbe, and the last into the Oder. The Pulsitz divides Upper Lausitz from Meissen, and the Queiss divides it from Silesia. The latter is a great vancy of picturesque and beautiful scenery. Though the country is very carefully cultivated, it produces scarcely half as much corn as the numerous population requires. Few of the towns, but scarcely a single one, has that which is wanted for the manufacturers. Here and there some buckwheat and millet are grown. Potatoes are very abundant. Timber is plentiful in some parts, but scarce in others; it is most abundant in the north-west corner, where resin, pitch, and tar are prepared. The breed of horned cattle is good; that of sheep is much attended to, and has been greatly improved by the introduction of merinos. The Wends (or Vandals) rear great numbers of good horses, and are famous for breeding vast quantities of geese. The breeding of bees has been much particularly attended to, and there is a Bee Society under the patronage of the king of Saxony. In the northsome bog ore is found, which employs a few forges: and large quantities of alum are obtained in the Moskau Hills. A considerable portion of turf moors, of which there are extensive tracts near Zittau there are mines of coal. The great majority of the population are employed in manufactures; in the towns they make woollens and stockings, and in the villages, several of which have from 3000 to 5000 inhabitants, they weave woollen cloths, which export much, and boiled linen of all kinds. The damask-weavers of Gross Schonau near Zittau, a village with 4000 inhabitants, manufacture table-linen, the brilliancy and fineness of which have never yet been equalled by any other damask manufacture. The great wholesale trade which the merchants of Upper Lusatia formerly carried on with their manufactures, especially that of linens, has very much declined within these fifteen years; but considerable quantities of woollens and table-linen are still exported to Italy, Russia, and America.

Lower Lusatia, which is the northern part of the margravate, is the smaller portion, its area being only 2047 square miles. A great portion of it is covered with moving sands, and there are large marches on the banks of the rivers, the principal of which are the Oder, the Spree, and the Neisse. Agriculture is in a backward state: there are raised however some wheat, barley, and millet for exportation, and tobacco, flax, and hops are cultivated to a considerable extent. The breed of horned cattle is extensive, and a few in number. Sheep and swine are in abundance. The breeding of bees is very general. Timber is more plentiful than in Upper Lusatia, and the Spree Wald is a considerable forest. There are also some iron mines, which are of little importance. The manufactures are linen and woollen; the Gotschen manufacture of cloth is of ancient standing. The Cottbus, which is wholly surrounded by it, and till then had belonged to Brandenburg, was incorporated with it; but by the Peace of Tilsit, 1807, it was ceded to Prussia, and has the name of a town.

After the immigration of the northern hordes Lausitz was inhabited by tribes of the Slavonian Sorbi, the ancestors of the present Wends, who were subdued in 928 by Henry I, king of the Germans, and converted to Christianity in 968 by Otto I. From that time its history presents a continual change of masters. In 1620 Lausitz and Silesia having revolted in consequence of the religious oppression of the emperor Ferdinand II, John George, elector of Saxony, reduced those provinces to obedience in the name of the emperor, and retained Lausitz as a security for 6,000,000 florins due to him by the emperor for the cost of his expedition. In the treaty of Prague, 1635, it was wholly ceded to the elector as a fief of Bohemia, and remained united with Saxony till the peace of Tilsit, 1807, when the circle of Kottbus, which is wholly surrounded by it, and till then had belonged to Brandenburg, was incorporated with it; but by the Peace of Tilsit, 1807, it was ceded to Prussia, and has the name of a town.

The fourth column gives, for comparison, the result of Dr. Kenney's examination of the compact lava from Carnia. Soda, an ingredient of compact felspar, appears more abundant in Carnia than in Saxony, and 1815 Saxone felspars are commonly supposed to contain more felspar; magnesia is not so common, its place in the chemical composition being probably occupied by oxide of iron. 

Trachyte is conjectured by Dr. Daubeny to be derived from granite; and some volcanic products possessing a certain chemical composition a remarkable analogy to that of granite. Obsidian, of which a specimen from Hecla yielded to Vaquelin—
Magnesia, Swedish Physiognomic, 872.

...is the same writer spoken of as derived from trachyte. In comparison with this we may place the composition of granite as calculated by M. de la Beche from its constituents...

The certainty with which the mineral ingredients of lava can be identified depends principally on the degree of crystallization which circumstances have permitted, and this on the part of the analyst (Journal of the Royal Institution, vol. xxii) has proposed an intermediate group to be called greystone. He states that in trachyte, felspar (or its substitute) exists in the proportion of 90 per cent. and upwards, in greystone more than 75 per cent., while in basalt less than 30 per cent. Mixtures of trachyte with basalt about 27/4, of greystone 3/4, of basalt even 3 5/6; differences which correspond with their chemical composition. The colours yielded by these rocks, when melted by the blowpipe, afford a good test for the fine-grained sorts. The class from trachyte is light coloured and nearly transparent; greystone gives a darker glass with green or black spots; basalt is changed to a dark green or black enamel. According to conditions of solidification,—in water, in air, or in favour of his mineralogy. In Laval, he has been celebrated among...
the latter years of Lavater his writings were less esteemed; his poems were compared with those of more recent German writers, and lost by the comparison; while a free-thinking spirit was on the increase, which revealed all sympathy with warmer feelings. The lonely position of the old pious and superstitious believers in Germany, at a time when the free-thinking spirit that preceded the French Revolution made constant innovations on the foundations of religion, led the philosopher to that in the last part of Stilling's 'Life.' The beginning of the Revolution Lavater regarded with pleasure; but his love changed to horror after the decapitation of the king. On the appearance of the Revolution in Switzerland, he mounted the pulpit and preached with distinct zeal, and there, as well as in all public assemblies, declared against the French party with an excess of animation and courage. When, on the 28th September, 1799, Massena took Zürich, Lavater, who was busy in the cellar at the time of the bombardment, and sitting among the sufferers, was shot by a grenadier. It is said that this grenadier was not one of the enemy, and that the act was that of an assassin; and it is further supposed that Lavater knew the man, but from a Christian spirit of forgiveness never betrayed him. He suffered a long time from this wound, but did not die till the beginning of 1801. During his illness he wrote some papers on the times and some poems, which are considered to be among his best productions.

LAVENDER. [T.]

LAVENDER, the name of hoary, narrow-leaved, fragrant bushes, inhabiting the south of Europe, the Canaries, Barbary, Egypt, Persia, and the west of India, with generally blue flowers, arranged in close terminal spikes. A dozen species are described, of which two only are of general interest, namely, the common Lavender (Lavandula angustifolia) and French Lavender (L. stoechas), both natives of sterile hills in the south of Europe and Barbary. The former yields the fragrant oil of lavender, so extensively employed in perfumery; and the latter oil of spike, employed by painters on porcelain, and in the preparation of varnishes for artists.

LAVENDER, a substance sometimes used as food, consists of the seeds of those plants belonging to the genera Potentilla and Ulva. Common purple lavander is furnished by Potentilla laciniata and vulgaris, two species common on rocks and stones in the sea on many parts of the British coast. They derive their botanical name from their beautiful purple or violet colour, which is produced entirely by the multitudes of spores, arranged in two, three, or four, with which the whole flower is filled. Green lavander is the Ulva latissima, a very common plant in the sea on rocks and stones in Great Britain, but also on the coasts of India, New Holland, the Cape of Good Hope, and South America. According to Lightfoot the Scottish Islanders ascribe to it anodyne properties, and bind it about the temples to assuage the pain of headache in fevers, and to dispel excitements.

In the Western Isles of Scotland, we are informed by the same authority, the inhabitants gather it in the month of March; and after pounding and stewing it with a little water, eat it with pepper, vinegar, and butter; others stew it with leeks and onions. In English lavander is usually steved and rendered palatable with lemon-juice; to many persons it is however nauseous, and it has been suggested that its introduction to fashionable tables was the sly contrivance of some medical practitioner who wished to prescribe it for the benefit of his scrofulous patients. (Greville's Algae Britannica, p. 159.)

LAVOSIEUR, ANTOINE LAURENT. This distinguished and eminent chemist was born at Paris on the 16th August, 1743. His father, who was opulent, spared no expense in his education, in which he acquired at the College Mazarin a profound knowledge of astronomy, mathematics, botany, and chemistry. As a physician, as well as a worker in science he should more particularly dedicate himself, he was determined in the choice of chemistry by the brilliant discoveries with which Dr. Black and others had then recently enriched that science. When only twenty-one years of age he obtained a degree in medicine by the ingenious invention of lighting the streets of Paris; and it is stated, that in order to enable himself to judge of the intensity of the light afforded by lamps, he kept himself during six weeks in a room from which the light of day was entirely excluded.

In 1768 he was admitted an associate of the French Academy, and finding that he incurred considerable expense in the prosecution of his chemical researches, he requested a grant of 200 livres per annum for his farmers-general of the revenue, and his purse and laboratory were equally open to the young inquirers in science. He was afterwards appointed to superintend the numerous re-works of Priestley were opened in the hotbeds of mankind, he was coldly informed by the public accuser that the republic had no need of chemists, and that the course of justice could not be delayed. Deeply regretted by every man of science and by the numerous friends whom his amiable manners had attached to him, he was consigned to the guillotine on the 8th May, 1794, leaving a widow, who many years afterwards was married to Count Rumford.

His publications were numerous and highly important; for besides the larger works which we shall presently mention, he was the author of nearly sixty memoirs printed in the 'Memoirs' of the Academy, and other periodicals. His principal separate works are: Opuscules Chimiques et Physiques, 2 vols. 8vo., 1777; Elements de Chimie, 2 vols. 8vo., 1789; 'Instructions sur les Nitrures, et sur la Fabrication de Salpêtre,' 8vo., 1777.

In a posthumous and incomplete publication, consisting of two octavo volumes, entitled 'Memoires de Chimie,' Lavosieur, alluding to the term commonly employed of the French theory, claims it entirely and exclusively as his own; and although it will be impossible for us to enter minutely into a consideration of the Lavosieran or antiphlogistic theory, yet we shall state, from his 'Elements de Chimie,' that he was particularly engaged, as well as his contemporaries, in the theory of phlogiston, and that he maintained that all bodies contain phlogiston, and that it is the medium by which the air is supplied with heat, and is capable of taking up or giving off heat, as the case may be.
similar to that of the atmosphere, and possessing nearly the same power of supporting respiration and combustion.

Leaving the name of the Apenines, let us mark the exact quantity of the two airs which constitute the atmosphere; for, he states that the mercury will not separate the whole of the respirable portion, and consequently part of it will be lost to the meteors.

Lavoisier also mentions some experiments which he performed with this highly respirable air thus obtained by the intervention of mercury from the atmosphere, and he notices the brilliant effects of the combustion of charcoal and sulphur, and also the air, which was discovered almost at the same time by Dr. Priestley, M. Scheele, and myself. Dr. Priestley gave it the name of dephlogisticated air; M. Scheele called it empiric air; I at first named it highly respirable air; to which has since been substituted the name of oxygen.

It is greatly to be regretted that so eminent a philosopher should so far have forgotten what was due both to others and himself, as to have made such a statement as this. It was one of the last acts of Dr. Priestley to publish, however unwillingly, that he first stated to Lavoisier himself, at his own table in Paris, in the year 1774, the fact of his having discovered this gas, in the presence of persons whom he names. Nor indeed is this the only instance, to use a gentle expression, which are included in the classification of a doctrine, not worthy, not merely of a philosopher, but of a man.

(See the Doctrine of Phlogitation Established, by Dr. Priestley, Northumberland, 1800.)

Lavoisier published a paper in the Memoirs of the Academy, entitled 'General Considerations on the Nature of Acids, and on the principles of which they are composed.' In this paper it is attempted to be proved that all acids owe their properties to the presence of oxygen, and that when bodies were deprived of oxygen they lost their acidity. This doctrine of the universal acidifying power of oxygen was generally adopted until Davy proved that what had been called oxymuriatic acid had not been decomposed, and that with hydrogen it formed muriatic acid; he first however showed that a central part of the living bodies on which the sulphur, were actually converted into acids by the union with oxygen; but by a too hasty generalization he was led to adopt principles which the further progress of science has proved to be untrue.

It is to be observed that Lavoisier did not discover any one of the elementary gaseous fluids. Mr. Cavendish had correctly described the properties of hydrogen before he began his career; and oxygen, azote, and chlorine were discovered, respectively, in the range of hills, by Lavoisier's friends, before he commenced his chemical researches. In one particular case he indeed denies the existence of a well known fact, namely, that gunpowder can be fired in vacuo, but then the fact is incorrect, as Lavoisier's inquiries of Lavoisier had the principal share in introducing that reform in the nomenclature of chemistry which ended in the expulsion of the phlogistic theory; and it is correctly stated by Professor Brande, 'that in this reform Lavoisier took the lead, and though his original investigations connected with it are few and comparatively unimportant, he availed himself with so much skill of the labours of others, by placing them in new points of view and exhibiting their unexpected applications, as to render them almost his own. Lavoisier's character has, in some measure, suffered by the misguided zeal of his admiring commentators, who, not satisfied with allowing him due merit for the logical precision and sagacity of induction which characterize his chemical and other researches, have given up the having the experimental activity of Priestley and the laborious diligence of Scheele. But Lavoisier, though a great architect in the science, laboured but little in the quarry; his materials were chiefly shaped to his hand, and his skill was displayed in their arrangement and combination.

LAV'OR'O, TERRA DI, a denomination meaning 'a tract of good arable land,' is the modern name of a province of the kingdom of Naples, corresponding to the districts of Abruzzo, L'Abruzzo, and L'Abruzzo, now called Abruzze; it is bounded on the north by Abruzzo, on the east by the province now called Sannio and formerly Contado di Molise, on the south by the province of Naples, on the west by the Mediterranean, and on the north-west by the Campagna di Avellino, and the north-east by the Puglia. The two states runs nearly parallel to, and at a short distance from, and sometimes on the left bank of the Upper Liris, beginning above Sora, which is near the northern extremity of Terra di Lavoro, at the foot of that part of the Apennines called the Apenine, and the Sasso with the Liris below the Papal frontier of Cepano. From that point the boundary-line diverges from the Liris to the westward, and follows a mountainous ridge which forms part of the chain of the Monti Lepini, separating the basin of the Liris from that of the Sacco, which opens into the valley of the Liris at Cepano. This last road, which follows the track of the ancient Via Latina, has been comparatively neglected, although it offers the shortest and pleasantest communication between Rome and Naples, until 135,546 men were employed in agriculture, who, with their families, might be reckoned to constitute about three-
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at 2310 English square miles; and it contains thirty towns and 412 villages and hamlets. (Petroni, Censimento dei Reali Domini di qua dal Paro; Neigebaur, Gemälde Italiens; Sennitori, Saggio Statistico; Sir R. Colt Hoare; Koppen, Italia ed Espana.)

LAW. In treating of the word law we will first explain its etymology, and the etymology of the equivalent words in the principal languages of the civilized world; we will next determine the strict and primary meaning of law, together with the general idea of the civil law. Afterward we shall state the most important species of law, in the strict sense of the word; and finally, we will make a few remarks on the origin and end of law.

1. The word law, and the equivalent words in other languages.—In the Greek language the most ancient word for law is thémis (θήμις), which contains the same root as ἰσθήμιναι, meaning 'that which is established or laid down'. In Homer θήμις signifies a rule established by custom, as well as by a civil government: it also signifies a judicial decision or decree, a legal right, and a legal duty. (Iliad, ii. 238; Od. xv., 56; Od., vii., 403; Il., x. 770; Il., ix. 156, 298; and see Passow in v.) θεμός and θῆμος are two very ancient Greek words, having the same original meaning of θήμις. The common Greek word for law, after the θήμις period, is ἱστήμως, which first occurs in the 'Works and Days' of Hesiod (v. 274-386, Gaifos), and contains the same root as ἱστήμως, to allot or distribute. The only word which the Greek language possessed, and which signifies a legal right was δίκαιον, or δικαιολογία. (See Hugo, Geschichte des Römischen Rechts, p. 962, ed. xi.)

Jurisprudence was never cultivated as a science by the Greeks before the loss of their independence. Many cases, however, were determined by the courts of Neapolitan cities, and many cases from the numerous subjects which they first subjected to a scientific treatment. The chief of these cases was perhaps the generally arbitrary character of the Greek tribunals, both in the democratic and oligarchical states. The Laconian had no written laws (see Aristotle's account of the jurisdiction of the Ephors in Polit., i., 9: compare Müller's Dörtea, b. iii., ch. 6, 2; ch. 11, ii. 2; and see Justinian's Institutes, lib. i., lit. 2, s. 19), and they probably never thought of attempting to cultivate law in a systematic manner. The Athenians possessed a considerable body of written laws, and, with their extraordinary talent both for speculation and action, they would, probably have contributed something towards reducing law to a science, if the laws of the judges (dikaiori) in their courts had not led to a popular and the traditional treatment of the questions which came before them, and, by diminishing the sense of personal responsibility, facilitated the growth of the popular doctrine that the law was a dead letter.

For the first scientific cultivation of law the world is indebted to the Romans. 'How far our ancestors,' says Cicero, 'exceeded other nations in wisdom, will be easily perceived on comparing our laws with the works of their barbarous conquerors.' Their legal code was a steep hill all of its own, and the attempt of the Romans to collect and systematize all the laws was called codification. For the first time in the world legal ideas and legal language were put in a form of a code. The first and most important code of Roman law was the Code of Justinian, and it was not until the middle of the first century B.C. that the Code of Justinian was published. (See Codex Justinianus, ed. 1791.)

17. In the valley of the Liri is the town of Pontecorvo, belonging to the Pope, with a small territory, surrounded on all sides by the Neapolitan province of Terra di Lavoro; it has a population of 6500 inhabitants.

The area of the province of Terra di Lavoro is reckoned as 360 acres, and the population is 7692 shepherds, and only 500 seamen. The clergy consisted of 3470 priests and 825 monks: there were also 1732 nuns. Good silks are made in the royal manufactury of Santo Lecino, near Casalabate, and woollens at Arpino; and there are extensive tanneries at Santa Maria di Capua. The principal towns of the province of Terra di Lavoro are:—1. Caserta, which is the residence of the intendent of the province of the three departments of the criminal courts, has 12,000 inhabitants, and is remarkable for the adjoining palace and gardens, which form one of the most magnificent royal residences in Europe. The two principal fronts of the palace are 787 feet long, and contain four stories of 37 windows each; the two other sides are 516 feet long, and consist also of four stories of 27 windows. In the interior are four courts, and in the centre of the palace is a superb staircase, crowned by a circular hall, affording communication with the various sets of apartments. The richest marbles are displayed in profusion, most of them being from the quarries of the kingdom. Swinburne, in his Travels, gives a list of them, amounting to 21 different sorts. The chapel is cased with panels of yellow marble and adorned with paintings. The theatre is a masterpiece of art; antique columns of alabaster support the roof and divide the house into forty-six boxes, richly decorated. The gardens are adorned with an artificial cascade, the water of which falls into an aqueduct near the neighbourhood of the mountains. 2. Nola, a very old town and a bishop's see, with 9000 inhabitants, contains several churches and convents, and extensive barracks. A quantity of pottery has been dug up in the neighbourhood, resembling the Etruscan vases, and the ancient name of Neapolis is still preserved. 3. Maddaloni, a pretty town at the foot of the mountains, has a royal college and 10,000 inhabitants. 4. CAPUA, on the Volturino. 5. Santa Maria di Capua has 9000 inhabitants, and a considerable inland trade. In the immediate neighbourhood are the remains of the amphitheatre of ancient Capua, which stood near the present site of Santa Maria Capua. 6. Between Capua and Naples is the pretty town of Aversa. North of Capua are.—7. The modern town of Puteoli, which stands near the site of the ancient town is well built; the inhabitants, who amount to 10,000, have an appearance of industry and comfort above their neighbours. 8. VenafrO, on the high road to Abruzzo, in a country abounding with olives, has 3000 inhabitants. 9. Cajazzo, with 5000 inhabitants. 10. San Germano, a modern town with 5000 inhabitants, and a secondary or grammar school, is situated on the road leading to Rome by the valley of the Sacco, and near an important frontier pass between the two states of Naples and the Pontine Gabies. 11. Mons Carlo, a town of high antiquity, is seated on the slopes of Monte Cassino. 12. San Germano. 13. Sorano, higher up the Liris, at the foot of the Apennines, is a bishop's see, and has several churches and 7000 inhabitants. 12. Isola di Sora, on an island of the Liris, which forms a fine cascaded level, has 3000 inhabitants and a small market; and clots and manufactories, 14. ARPINO. 14. Aquino. 15. Atina, among the mountains, in a healthy situation, has 8000 inhabitants and many antiquities. Its women are celebrated for their beauty. 16. Sesia (Sueza Aurunca), on a hill not far from the high road to Rome, has 4000 inhabitants, several churches and convents, and some remains of antiquity. 17. Teano, once the capital of the Sidicini, now has 4000 inhabitants, a cathedral, and seminary. A few miles south of Teano is Calitri, which is decorated with several temples in the slope of the bad air. Farther west the high road to Rome passes over a fine suspension bridge which has been lately thrown over the Garigliano, or Liris, by the present king Ferdinand II. Not far from this spot stood the ancient Minturnae. Beyond it is (18) Gaeta. Next, passing through Itri, which is perched on a steep mountain, and is remarkable for its wretched appearance and the squallid look of its inhabitants, we reach (19) Fondi, a bishop's see and a flourishing town. The borders of the district are destitute of forests, the land is unhealthy plain, with 5000 inhabitants, and some remains of ancient walls, of the construction called Cyclopean. The ancient Via Appia, with its old pavement, forms the principal road of the district.

In the valley of the Liris is the town of Pontecorvo, belonging to the Pope, with a small territory, surrounded on all sides by the Neapolitan province of Terra di Lavoro; it has a population of 6500 inhabitants.
nations belonging to the subject of jurisprudence. Lex, which has the same etymological relation to legis that lex has to rego, meant properly a measure proposed by a magistrate to the country, the people. A lex was not necessarily a rule, and might relate to a special case (Hugo, Ibid., p. 327); but as most of the leges proposed by the magistrates were general, the word came to signify a rule, though they bear an analogy, more or less, to laws written or unwritten; it also denoted a legal right or faculty. Lex signified a 'law; jus 'law' generally. (Austin’s Province of Jurisprudence, p. 367.)

The Romance languages have retained the word lex in the sense of the Romance of the country (la ley Spanish, loi French). They have however lost the word jus (though they retain many of its derivatives), and have substituted for it words formed from the passive participle of dirigo (diritto Italian, derecho Spanish, droit French), probably after the analogy of the German recht.

Nearly all the Teutonic languages (including the Anglo-Saxon) possess some form of the word recht, with a double sense equivalent to the Latin jus, namely, law and faculty. The modern English uses right in the sense of faculty alone. The High German has gesetz (from ‘setz,’ to place,’ like ἐπίκεισθαι and ὅμιλος), for a written law equivalent to lex. The Low German languages have, instead of gesetz, a word formed from legen, to lay down, which in Anglo-Saxon is the modern law; laws of nations (natural jus, law however, in modern English, has not the limited sense of gesetz, but is coextensive with the Latin jus, when the latter does not signify faculty. We do not wish to dwell unnecessarily on the subject, as the German recht, the Dutch wet, the French levé in the sense of laid. This word is derived from the ancient reetjan or reetjan, Gothic, ‘to bind,’ and is equivalent etymologically to the Latin obigatio. The English verb to use is derived from usum, a word which signifies marriage in German, originally meant law or ordinance (Nibelungen Lied, v. 139, 5061); so that the Dutch wet and the English use stand to one another in the same relation as the ancient and modern senses of the.

Meanings of the word Law.—A law, in the strict sense of the word, is a general command of an intelligent being to another intelligent being. Laws established by the sovereign government of an independent civil society are called positive, as existing by positive law. [See Statute.] When law is spoken of simply and absolutely, positive law is always understood. Thus in such phrases as ‘a lawyer,’ ‘a student of law,’ ‘legal,’ ‘legality,’ ‘legislation,’ ‘legislator,’ &c., positive law is meant. Positive law is the language of political obligation and moral duty. [JURISPRUDENCE.] Every general command of a sovereign government to its subjects, however conveyed, falls under the head of positive laws. The general commands of God to man (whether revealed or unrevealed) are considered as holy and binding. It has been tacitly assumed that positive laws are times also known by the name of ‘natural law,’ or ‘law of nature.’ The Divine law (according to the phraseology just explained) is the standard to which all human laws ought to conform. On the mode of determining this standard some remarks will be made lower down.

Besides positive law, which is known to be a command embodied by a sanction, and the Divine law, which is presumed to be so, there are some classes of laws which are not commanded by positive law, but are not outside of reason, and require respect by laws properly so called. Thus the term ‘law of nations,’ or ‘international law,’ are signified those maxims or rules which independent political societies observe, or ought to observe, in their conduct toward one another. An independent society is a social system which is not in the habit of rendering obedience to a political superior; consequently, an independent political society cannot receive a command or subject to a law properly so called. But inasmuch as the maxim is a social rule or self-imposed and the will of the host of other independent societies against their own country, there is a close analogy between the so-called ‘law of nations’ and positive law. We may here remark inden tally that the term ‘jus gentium,’ as used by the Roman lawyers (with whom it originated), has a totally different meaning from ‘law of nations,’ as used in modern times, according to the moderns, to mean the rules of law which are peculiar to any independent state; jus gentium consists of those rules of law which are common to all nations. (Quod quisque populus ius sibi consuetudinis, iuris non riparium, quasi proprium jus iuris civitatis. Quod vero natura vel nationes, vel homines constituit, id apud omnes peresse custoditur, vocaturque jus gentium, quasi quae jure gentes utuntur.) (Inst., lib. i., t. 2, s. 1, and Gaus, i. 1.) In the language of the Romans jus naturale or naturalum jurisしゃ the ‘law of nations’ proper, in juridical, not merely moral, sense.

When sometimes the Jad is shewn by analogy, it is shown that its existence is a rational proceeding, that it is not contrary to reason, and that it is not contrary to the general welfare. The Roman jurists used the term jus naturale to distinguish it from jus humanum in natura. [Jurisprudence.] (See e.g. Inst., lib. i., t. 2, and cit.) Concerning a peculiar meaning attributed to jus naturale in a passage of Ulpian (Dig., lib. i., t. 1, fr. 1, s. 3; Inst., lib. i., t. 5, ad init.), see the remarks of Mr. Austin, in his Provis. of Jurisprudence, p. 188.

2. Species of Positive Law.—The positive laws of any country, considered as a system, may be divided with reference to their sources (or the modes by which they become laws) into written and unwritten. This division of laws is of great antiquity; the expression unwritten laws occurs in the Sophist of Plato’s. (v. 420 b, c.) In a comment on Socrates (iv. 4, 19), in the ‘Antique’ of Sophocles (v. 450-7, comp. Aristoph. Acharn. i. 13, 2), in the ‘Republic and Laws of Plato’ (v. 633 and 753, ed. Stephe.), and in Demosthenes (Aristot. fr. p. 639, ed. Reise). In those passages it appears to signify those rules of law or moral realities which are (being founded on obvious dictates of utility) are nearly common to all countries. Unwritten law, in this sense, nearly corresponds with the jus naturale of the Roman lawyers. In modern times, however, the expression is usually restricted to the written, or that part of the law which has direct operation on the public. The expression written law is more properly applied to written or unwritten (‘just quod constat ex scripto aut non scripto’) are used in a more precise manner, to signify those laws which had been promulgated by the Roman legislature in writing, and are those which are derived from some legislative from usage. For (as it is stated in a passage of the Digest) ‘since the laws derive their binding force from nothing but the decision of the people, it is fitting that those rules which the people have approved of without reducing them into writing should be equally obligatory. For what difference is there whether the people declares its will by vote, or by its conduct?’ (Quum ipsa legis nulla alia ex causa nos teneat quam quod judicio populi recepisse sunt, merito et quae sine scripto populus probaverit, teneat omnes; nam quid interest, suffragio populi voluntatem suam declarat, an rebus ipsis et factis? Dig., lib. i., t. 3, fr. 32.)

Sir William Blackstone divides the law of England into four classes: 1. Lex non scripta, or the unwritten law (the lex scripta, the written or statute law). The lex non scripta, or unwritten law (he further says), includes not only general customs, or the common law properly so called, but also the particular customs of certain parts of the kingdom; and likewise the particular laws that are put in force only in certain courts and jurisdictions. ‘When I call these parts of our law leges non scriptae (he proceeds to say), I would not be understood as if all those laws were at present merely oral, or mere human prescriptive laws, which a people acquires to the present solely by word of mouth. It is true
indeed that, in the profound ignorance of letters which formerly overspread the whole Western world, all laws were entirely traditional, for this plain reason, because the nations among which they prevailed had little idea of writing. Present, the modern methods and evidences of our legal customs are contained in the records of the several courts of justice, in books of reports and judicial decisions, and in treatises of learned sages of the profession, preserved and handed down to us from the times of highest antiquity. I therefore hold that these parts of law legis non scripta, because their original institution and authority are not set down in writing. (1 Com. p. 63.)

In this passage Blackstone clearly explains that unwritten law does not exist in writing because it does not exist in writing; that is, it is not promulgated by the legislature in a written form. His statement of the sorts of laws severally comprehended by the classes of written and unwritten law in England is erroneous. Written law comprehends not only the statutes made by the parliament or supreme legislature, but also the written regulations issued by subordinate legislatures, as orders in council, and rules of court made by the judges. Unwritten law, moreover, comprehends not only the common law which is administered by the courts styled 'courts of common law,' but also the greatest part of the law styled 'equity,' which is administered by the courts styled 'courts of equity.'

Unwritten law has been called by Mr. Bentham judge-made law, named common law, which correctly denotes the mode by which it becomes law.

It may be remarked that a written law is called a law, but that a rule of unwritten law is never called a law. This phraseology corresponds to the distinction between jus and jus privatum. It is not correct law to call a law which is not written law.

Positive laws are also divided, according to their source, into laws made by supreme, and laws made by subordinate legislatures. In other words, laws may be issued by the sovereign legislature, or by functionaries deriving their authority from the sovereign legislature.

The sources of law are not unfrequently confused with its causes; in other words, with the facts which induce the sovereign to invest certain maxims with the legal sanction. There are two facts that a rule of positive law or constitutional law exists as law, by virtue of custom or usage, and not by virtue of the authority of the sovereign or his representative, who has imparted it to a binding force. This subject is clearly explained in Mr. Austin's 'Outline of a Course of Lectures on General Jurisprudence,' pp. 10, 11.

The laws of a state, considered as a system, may be divided, with reference to their subject-matter, into public and private. The division of jus into jus publicum and jus privatum, as in the Roman law, is the Roman law, and occupies the conspicuous station at the beginning of the Digests and Institutes. No trace of this division exists, as far as we are aware, in any Greek text. Jus publicum is defined to be quod ad statum rei Romanae spectat, "quod in sacris, in publici iurisdictionibus concursus, quod ad singularum utilitatem pertinet." The institutional treaties of the Roman lawyers appear to have been confined to jus privatum; the Institutes of Justinian do not touch upon jus publicum, except in the final chapter De Publica Iudicis, and this chapter is wanting in the Commentaries of Gaius, on which the Institutes of Justinian are mainly founded. Hence it appears that the Roman lawyers included under jus publicum not only the public law, but also the rights and duties of persons in public conditions, but also criminal law. Their definition of jus publicum, however, does not properly include criminal law, and the term, as used by later writers, has not in general this extension. Publicus is the adjective of publicum, and signifies that which belonged to the sovereign body of citizens; hence jus publicum signified that law which concerned the government of Rome, and its magistrates and other functionaries. Privatum seems to have meant private, which was assimilated to any common stock; hence it came to signify that which did not concern directly the public or state.

The formal division of law into public and private is not to be found in the institutional treatises of English law. In the 'Common Law of England,' Lord Bacon, in his 'De Controversiis,' lib. viii., cap. 80; where he advises that, after the model of the Roman jurists, jus publicum should be excluded from institutional treatises.

Sir W. Blackstone, in the first book of his 'Commentaries,' treats of the rights and duties of persons, in their public and private relations to each other (pp. 146, 422). The former branch of this division, which occupies chapters 2 to 13, comprehends jus publicum, in its limited sense, which does not correspond to the English term 'constitutional law.' The droit politique or constitutionnel of Mr. Bentham, in his 'Traite de Legislation' (t. i., p. 147, 325-6, ed. 1802), is also equivalent to jus publicum, in its strict sense. (Austin's Outline, p. lix.)

Positivism is often divided, with reference to its subject, into the law of persons and the law of things. The Roman jurists, who were the authors of this division, arranged these two classes under the head of jus privatum, and therefore under a head which corresponded to the English term 'commercial law.' A full explanation of this important division is not consistent with the purpose of the present article: we extract a brief and lucid statement of it from Mr. Austin's 'Outline' already cited. There are certain rights and duties, with certain capacities and incapacities, which are rights and incur duties, which persons, as subjects of law, are variously determined to certain classes. The rights, duties, capacities, or incapacities, which determine a person to one of these classes, constitute a condition, or status, which the person occupies, or with which the person is invested. The right, duties, capacities, and incapacities, whereof conditions or status are respectively constituted or composed, are the appropriate matter of the prior and consequent law which constitutes a person's status: jus quod ad personas pertinent. The department, then, of law which is styled the law of persons is conversant about status or conditions: or (expressing the same thing in another form) it is conversant about persons (meaning in the narrow sense) and the conditions or status to which this person is invested or corresponds (pp. xvi., xviij.). The most important conditions or status, composing the law of persons, are public, or political, and private. The former species includes all persons sharing the sovereign power and all the functionaries; the latter includes the conditions of husband and wife, parent and child, master and servant, guardian and ward, &c. The term jus publicum, when used in a precise sense, is equivalent to the term right: the public right is that which is limited to the public uses of the state. The ancient definition of jus in a general sense is quod ad singularum utilitatem pertinet. The political treatises of the Roman lawyers appear to have been confined to jus privatum; the Institutes of Justinian do not touch upon jus publicum, except in the final chapter De Publica Jusicia, and this chapter is wanting in the Commentaries of Gaius, on which the Institutes of Justinian are mainly founded. Hence it appears that the Roman lawyers included under jus publicum not only the public law, but also the rights and duties of persons in public conditions, but also criminal law. Their definition of jus publicum, however, does not properly include criminal law, and the term, as used by later writers, has not in general this extension. Publicus is the adjective of publicum, and signifies that which belonged to the sovereign body of citizens; hence jus publicum signified that law which concerned the government of Rome, and its magistrates and other functionaries. Privatum seems to have meant private, which was assimilated to any common stock; hence it came to signify that which did not concern directly the public or state.

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compensation for the violation of a right, which he claims from the defendant. The scope of a criminal action is to inflict punishment on the defendant for the breach of a legal duty which is imposed on him. Penal law is not identical with criminal law; for an act or omission may be both a legal punishment in consequence of an action instituted within a certain period. A person convicted of a crime is held to have committed a crime, and is guilty of the same. The term crimen was used by the Romans as equivalent to delictum publicum, that is, a delict which was the subject of a judicial publicum law (De Alia, § 7-3.)

Concerning the difference between the making of laws and the execution of them, or (as they are termed) the legislative and executive functions of government, see Lecture XX.

Law is sometimes opposed to fact; that is to say, the rule of law is distinguished from the facts or events to which it is applied in practice. In this sense it is said that the laws of the English common law, or those of any particular country, are rules or principles of justice, whereas ignorance of the fact is an excuse. (For the distinction between law and fact see Dig., lib. xxii. t. 6.) The distinction between law and fact is important in our system of jurisprudence, with reference to trial by jury; for, according to the common law, the judge is to determine the law, and the jury the fact. This maxim is somewhat more than anything; for in practice the jury, by its power of returning a general verdict, is judge both of the law and the fact. (Jury.) On certain questions which necessarily arise in the administration of justice, and which are questions neither of law nor of fact (such as 'due diligence,' 'reasonable notice,' 'probable cause,' &c.) see an article on the Law Magazine, vol. xii. pp. 55-74.

Laws, considered singly, have been divided into numerous species, as declaratory, remedial, penal, appellate, &c. Concerning these see Austin's Province of Jurisprudence, p. 22, and Dwaris on Statutes, ch. 10.

4. Origin and End of Positive Law.—It has been above stated that all positive laws are common, that is, the discoveries of the person or persons exercising supreme political power in an independent society. Consequently the notion that positive laws are derived from a compact between sovereigns and subjects (stated the original or social contract) is a delusion.

The proper end of positive law is the promotion of the temporal happiness, or well being, of the community over which the law extends. Thus Aristotle, in his 'Politics,' states that 'political society was formed in order to enable men to live, and it continues to exist in order that they may live happily.' (I. 2.) 'Finis et scopus (says Lord Bacon) quae leges intueri atque ad quae jussiones et sanctiones suas dirigere debent, non alius est quam ut civs feliciter regant.' (De Augn., lib. vii., ap. 5.) The meaning of Aristotle and Bacon, in the passages just cited, was no other than that expressed by Mr. Bentham in his well-known formula, that the end of political government is 'the greatest happiness of the greatest number.'

We have stated that the proper end of positive law is the promotion of the temporal happiness of the community. The end of the political union is the promotion of the happiness of its members in the present state of existence; in which, according to the common law, a man's life, liberty, and property are considered the greatest happiness of the greatest number. (See Warburton's Divine Legation, b. 1, 2, vol. i. p. 215, 8vo. ed.)

From the beginning of the Deity's government it was assumed that those rules which tend the most to produce the happiness of his creatures are most agreeable to him; and consequently the term 'Divine law' (also called natural law) is used to signify those maxims, to which human laws ought to conform. In the vast countries where the Mohammedan and Brahminical religions prevail, a great proportion of the positive law is supposed to be derived from the direct revelation of a supernatural being; and therefore the Divine laws of the state of society coincide. The Christian dispensation however does not (like the Jewish) contain any system of rules out of which a body of positive law can be formed, or which can be enforced by a civil government. Consequently countries where a very small part of positive law is formed, correct precepts derived from immediate revelation: the far greater part of positive law is or ought to be fashioned upon rules of Divine law, which are only discoverable by a process of inference from those of the state of society.

LAW. JOHN of Lauriston, was born about the year 1681 at Edinburgh, in which city his father exercised the trade of a goldsmith. His mother being heiress of an estate called Lawless or Lawdys, by marriage became, in conformity with the Scottish custom, Law of the Lute, and by that title also. In very early life, in consequence of the reputation of possessing great talents, he was engaged to
arrange the revenue accounts of Scotland, an employment which may have mainly contributed to fix his mind upon finances. About this time he proposed the establish-ment of a bank which should issue paper-money to the amount of the value of all the lands in the country, thus confounding credit or security with currency, and imagining that the latter could never be in excess so long as the paper issue was fixed. He supposed such a bank should be in existence. Law lost his father when he was little more than of age. He was handsome in person and of graceful carriage, fond of society, and courteous to it. Finding that his patriotism would not suffice for the support of his family, he had resorted to the gaming-table. During this career he fought a duel, and having killed his antagonist, he fled the country and visited Italy. His course of life must still have been very troublous, for he was imprisoned successively for robbing from Venice and from Genoa, after which he wandered from one Italian city to another practising the arts of a gambler.

Law next went to Paris, where he soon succeeded in ingratiating himself with the regent duke of Orleans, and in incumbering him with his plans of finance.

By the persuasion of Law the first public bank of circulation was established by the regent in 1716, and its management was entrusted to the projector. This bank obtained the privilege of issuing millions of paper, which having been pronounced to be exchangeable on demand for coin of the established weight and fineness at the pleasure of the holder. The public debt of France at that time amounted to 1500 millions of livres, or about 70 millions sterling, and was so large that public estimates of all kinds except at 60 to 70 per cent. discount. Law's bank was projected with the view of paying off this debt, by giving the public creditor the option of subscribing for bank shares and paying for the same number of shares in the public stock at par. With the view of inducing the public to purchase the bank shares, a patent, giving possession of the country of the Mississippi, under the name of Louisiana, which had been granted in 1712, to the sieur Crozat, was purchased, and the Mississippi Company was formed, with a capital of 150 millions of livres, and allied to the bank, having secured to it for twenty-five years the sole right of trading to that quarter, and also of pro-secuting the Canada beaver-trade. Still further to assist the scheme, the receivers-general of taxes were directed to make all their payments in the paper of the bank. With all these advantages it was yet a long time before the favour of the public was so far gained that the subscriptions amounted to 100 millions of livres. In 1718 the Mississippi Company had the entire farming or monopoly of tobacco granted to it for nine years, and thereupon sent great numbers of planters, artisans, and labourers to Louisiana. In the following year the French East India Company and the Senegale Company were both incorporated with the Missis-sipi Company, which then enjoyed the trade of France 'from the Cape of Good Hope eastwards to all the other parts of Africa; to Persia, India, China, Japan, and the Isles, even to the Straits of Magellan and Le Maire.' From a prospect of advantages to be derived from these various sources soon began to operate upon the public; and such numbers crowded forward to make investments in the stock of the Mississippi Company, that in August, 1719, its price was driven up to 500 per cent. It may serve to show the feverish state of excitement then prevalent to state, that on the rumour of Law being seized with illness, the stock fell from 500 to 445 per cent., and that his convalescence raised it again to 610 per cent. In the month following the farm of all the public revenues was granted to the Company, all of whose privileges were by the same arrêt prolonged to the year 1770, in consideration of which concessions the Company agreed to advance to the government, for paying off the public debt, 1200 millions of livres, about 50 millions sterling, at 5 per cent. A further sum of 50 millions of livres was paid by the Company for the exclusive privilege of coining during nine years. In a few weeks the stock rose in price to 1200 per cent., when 50 millions were added to the capital by fresh subscriptions at 1000 per cent., and the number was still increased by issuing notes of the existing mania which had seized all classes, the new capital was divided into very small shares. By this means the Company was enabled to lend to the government an additional 800 millions of livres, or 200 millions sterling, at 3 per cent. In the midst of all this speculation, the bank having issued notes to the amount of 1000 millions of livres, upwards of 40 millions sterling, there was such an abundance of money afloat, that the prices of all commodities rose exorbitantly. At this time the Sir John Law was considered to be a man of so great consequence, that his levée was constantly crowded by persons of emi-nence from all parts of Europe, who flocked to Paris that they might partake of the golden shower. From November, 1719, to the end of the year, the Mississippi Company's stock continued to rise, until it reached 2000 per cent. On the 21st of the following month a royal arrêt appeared, which suddenly produced an entire revulsion in the public feeling. Under the pretence of a previous depreciation of value from the act of 1718, it was declared that the nominal value of bank notes to one-half, and of the actions of the India or Mississippi Company from 9000 to 5000 livres. It is not possible adequately to describe the effect of this on the public mind, and the progress of events by this step. The bank notes could no longer be circulated at more than one-tenth of their nominal value; and the parliament having represented the fatal consequences of the arrêt, another was issued, stating that 'the king being informed that his reduction of the bank bills has had an effect quite contrary to his intention, and has produced a general confusion in commerce; and being desirous to favour the circulation of the said bank bills for the convenience of the nation, has given them in payment, and having heard the report of the said Law, he was therefore pleased to issue such regulations as declared necessary, that these bills may be current on the same footing as before the above arrêt, which he hereby revokes.'

The charm was however broken. This and ten other arrêts were then successively issued, the last of which, dated from its date could not restore the confidence of the public. Law found it prudent to retire from the management of the public finances, and for his personal protection a guard was assigned to him. Many prudent persons applied themselves earnestly to realising their property, and to send it to safety to other countries, which proceeding occasioned the issue of a royal ordonnance, in which such a course was forbidden upon pain of forfeiting double the value, while all heretofore paid in bank bills or not paid in gold and silver were declared of no use, and the latter were prohibited on the like penalty. By this means the public confidence was gradually repaired, and Law was rewarded with the fairest of all public recognitions, that of being received at the levee of the king, and thereupon presented to the queen, and at her instance restored to the court.

In 'A Discourse upon Money and Trade,' which he wrote and published in Scotland, Law has left a record of the flattering but visionary views which led him to his financial schemes.

LAW, WILLIAM, born 1686, died 1751, the author of various works of practical divinity, of whom we should have known little, had it not happened that he was for some time living in the family of Mr. Gibbon, father of the historian Gibbon, which leads to the introduction of some valuable notices of his life, habits, and opinions, in the beautiful fragment of autobiography which the historian prepared. The poet John Milton dedicated to Lawrence his work Miscellaneous Works of Edward Gibbon, and to this work we refer for the details, giving here only a very slight outline.

He was born in Northamptonshire, went to Cambridge, with a view of entering the Church; took the degrees of B.A. and M.A.; was of Emanuel College, and in 1711 elected a Fellow. On the accession of King George I. he was refused to take the oaths prescribed by act of parliament, because he had in question recanted his fellowship. It was soon after this that he acquired the family estate of Thurland at Putney. Here he continued several years, and his connection with the family became perpetual to his death in consequence of a design which Miss Heather Gibbon, the sister of the historian, formed, and executed, of retiring from the world in company with her friend Mrs. Elizabeth Hutche-
son, and living a life of charity and piety, with Mr. Law for their chaplain. They fixed upon King's Cliff, the place of Mr. Law's birth, as the spot to which they retired; and there Mr. Law lived the last twenty years of his life, dying April 1751.

Mr. Law was the author of various works, in which he recommends the exercise of a piety which approaches to the character of ascetic, and which is almost impossible for any one to practise who is not in a great degree relieved from worldly business. The most popular of them is entitled 'A Serious Call to a Devout and Holy Life,' a work containing many passages of great beauty, and many spirited sketches of various characters to be found in the world, which has had great influence, and whose copies have been sold out of print in all countries. The success of this work, as well as of various other productions, made him one of the most popular both in the north and south of England. He was long acquainted with the best poets of his time, and set many of their verses to music, particularly Walker's. He also lived much with persons of rank, and was acquainted with the most distinguished instances, made vocal by the notes of Lawes. Those appear in the publications of his time, but chiefly in his three sets of Ayres and Dialogues for One, Two, and Three Voices, published in 1653, 1655, and 1659, comprising about 150 songs, duets, and trios, printed in a genuine note, in a key unlike that of the modern style.

LAW, EDMUND, D.D., bishop of Carlisle, born 1703, died 1717. This amiable and learned prelate was the son of a clergyman in the northern part of Lancashire, and passed from the grammar-schools of that part of the kingdom to St. John's College, Cambridge. As soon as he had taken a degree he was elected Fellow of Christ's College, and in 1727 was presented by the university to the rectory of Greystock in Cumberland. To this, in 1743, was added the archdeaconry of Carlisle, which brought with it the living of Salkeld, on the pleasant banks of the Eden. In 1756 he resigned his archdeaconry and returned to Cambridge, where he spent the remainder of his life. In this, the first period of Dr. Law's life, he had published those writings which show at once the peculiar turn of his own mind, and have given him a place among the best and most original writers of his age. His first work was his translation of Archbishop King's 'Essay on the Nature of Evil,' with copious notes, in which many of the difficult questions in metaphysical science are considered. This was soon followed by his 'Enquiry into the Ideas of Space and Time,' in which he endeavored to free philosophy from the prejudices of mere speculation, and to establish it on a firm foundation. His next work was 'Considerations on the Theory of Religion,' with Reflections on the Life and Character of that great writer, a work of singular beauty, not to be read by any person without a knowledge of the whole of the subject. His Cambridge appointment of master of Peter House soon added those of university librarian and professor of languages. He was made archdeacon of Stafford, but a preference was given him in the church of Lincoln, and, in 1767, he was made bishop of Carlisle. And in his thirteenth sonnet, addressed to Lawes, beginning—

'Harry, whose truthful and well-measur'd song,' he bears honourable testimony to the moral worth and judgment of his performer. He says, "Lawes ... to the next year he was appointed to the bishopric of Carlisle. In 1777 he published his edition of the works of Locke, with a life of the author. The peculiar character of Dr. Law's mind appears to have been acquired in a great measure by a devoted study of the writings of that philosopher. From him he seems to have derived that value which he set on freedom of inquiry, in relation to theological as well as to every other subject, and all the refinement of the musician, and the less difficulty of the practice, and the grace and variety of the composition, and the freedom with which the voice was employed. The most striking proof of this is afforded in the edition of his 'Considerations,' printed in the latter part of his life at a press at Carlisle, in which are many important alterations. From Locke also he seems to have derived his notions of the proper mode of studying the Sacred Scriptures in order to come at their true sense. He was in short an eminent master in that school of rational and liberal divines which aimed to be an original church, and is returned for the names of Jortin, Blackburne, Powell, Tyrwhitt, Watson, Paley, and many others.

This account of Dr. Law is derived for the most part from a notice of his life by Archdeacon Paley, inserted in his History of the Bishops of London. He was a man of great learning, and was the author of many books, and one of the most learned and curious men of his time, and indeed long after, could boast a school of music peculiarly their own.

LAWES, WILLIAM, brother of the preceding, was educated at the same master, and for a time also held the situation of gentleman of the chapel. From his five years he entered the royalist army, and had the rank of captain; but with a view to his personal safety, lord Gerrard made him a commissary. Dissuading however the security offered, he was killed at the battle of Edgehill, through the misfortune of an incident. In this time, and indeed long after, could boast a school of music peculiarly their own.

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* * *
tions of the day. In Boyce's Collection is an anthem of his, which puts him on a level with most of the church composers of his time. But his chief work is a collection of Psalms for three voices, set to the well-known paraphrase by Mr. Pusey.

LAWN, a space of ground covered with grass, kept short by mowing, and generally situated in front of a house or mansion, or within the view from such. The number of evergreens which survive our winters, and the verdure of the grass in summer, are peculiar features of England in comparison with continental Europe, where in general the grass is either burned up in summer, or the exotic is destroyed by the severity of winter. The mowing lawn is with us a subject of interest to every possessor of a garden.

Previous to laying down, the ground intended for a lawn should be properly trenched and drained, in order that such trees and shrubs as may afterwards be planted upon it should succeed well. The direction of the trenches should be towards a drain, to which, if possible, their bottoms should form a regularly inclined plane, for the purpose of affording the means of escape for the water, which, in retentive soils more especially, would otherwise stagnate. Although trees and shrubs are absolutely necessary for giving due effect to the scenery of a lawn, yet in the latter, one open extensive space, lying in the full view from the windows of the house, must be preserved. For this portion, digging instead of trenching, is recommended, and sufficient space ought to command views from this principal area, should be trenched, as well as for the shrubs and trees; for if the operation were only performed with regard to the latter, the water would be driven into the space intended for the benches, which would be the case if the mode of trenching were adopted as is above recommended.

After trenching, the soil should be allowed to subside, and the greatest care should be taken to make the surface perfectly even, otherwise a great expense will be afterwards incurred by the loss of time in mowing, which can neither be so quickly nor so well performed where the surface is uneven.

If turf can be readily procured, a lawn is at once produced; and by such means a more uniform distribution of grass may be obtained than by any other means. The surface of a well-fed meadow, or of an old common, closely cropped by sheep and goose, affords the best kind of turf; and if any tall or coarse grasses be mixed with it, no inconvenience will arise, for everything of this sort will eventually disappear under close mowing; and such only as are dwarf and suited to the soil will ultimately remain. Where a turf is to be formed from new mowing, the seeds of such species as are indigenous to the locality, and produced in the same time, as proper for being dwarf and fine, are to be preferred; but in the event of this method of forming a lawn being adopted, it is always desirable that a narrow slip of good turf should be left, and the circumstance of the species may be mentioned as proper for a lawn in average situations:—Lolium perenne, or ryegrass; Poa trivialis or pratensis; Anthoxanthum odoratum, or sweet vernal; Cynodon eratatus, or crested dogstail, with a considerable quantity of Medicago lupulina, or black sainfoin, and Trifolium repens, or Dutch white clover. If the situation is particularly dry, Festuca ovina, or sheep's fescue, should be substituted for Lolium perenne; if very low and wet, then the plug of the turf may be filled with Alopecurus pratensis, or meadow foxtail. All these grasses may be procured in dealers in agricultural seeds; it is however better for persons in the country to collect for themselves such as can be found in their neighbourhood, for then they can depend upon their being genuine. The utmost care should be taken to avoid the introduction of Dactylis glomerata, or cocksfoot grass, and Holcus lanatus, or mollis, for these hard, harsh, stubborn grasses resist the effects of mowing for a long time.

The process called inoculating, or of making lawn by sowing the ground with fragments of turf, and rolling them in, cannot be recommended when a lawn is required to look particularly well, for it is a long while before the surface of the turf is uniform under these circumstances.

Lawn, when once established, require only to be kept neat by the ordinary routine of rolling, mowing, and sweeping, except keeping the surface perfectly even, by making small hollows, with screened mould, early in spring. When lawns become worn out, a top-dressing of any finely-divided manure will refresh them: malt-dust applied in October is excellent for this purpose; and at the same time an additional quantity of grass-seed may be sown. When the walks are to be made, or the adjoining them should be perfectly straight also, and care should be taken that the grass-edging is kept rolled down and pared, so as never to exceed an inch and a half above the level of the walk.

LAWRENCE, River. [Canada.]

LAWRENCE, SIR THOMAS, was born in April or May, 1769, at Bristol. His father had been brought up to the legal profession, which he however never followed. Having contracted what the world calls an impoverished marriage, his only means of livelihood was his beautiful daughter of the Rev. W. Read, vicar of Tenbury, he obtained some years afterwards, through the interest of an aunt of Mrs. Lawrence, the office of supervisor of excise at Bristol, which he resigned soon after the birth of his son Thomas, and became landlord of the White Lion inn. Not succeeding at Bristol, Mr. Lawrence, in 1772, was enabled by his friends to become landlord of the Black Bear at Devizes, where he remained till 1779. This inn was at that time much frequented by the rich and fashionable, who resorted to Bath, and generally stopped at Devizes. It was here that young Lawrence manifested that decided predilection for the art in which he subsequently attained such eminence. He drew striking likenesses with the pencil and in water-colours, and was frequently invited to command views from this principal area, which should be trenched, as well as for the shrubs and trees; for if the operation were only performed with regard to the latter, the water would be driven into the space intended for the benches, which would be the case if the mode of trenching were adopted as is above recommended.

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of Aix-la-Chapelle, thence to Vienna, and in May, 1819, to Rome, where his magnificent portraits of Pope Pius and of Cardinal Gonsalvi were enthusiastically admired. The collection of portraits executed in obedience to this commission a new in the Waterlool Hall at Windsor Castle. Among so great a number of portraits, says Waagen, "all cannot be equal in merit. I was particularly pleased with those of the Pope, Cardinal Gonsalvi, and the emperor of Austria. Besides the graceful and unaffected design, the clear beauty which is more prominent, in Lawrence, these are distinguished by greater truth of character and a more animated expression than is generally met with in his pictures. The praise here given to Sir Thomas Lawrence is just, but it is not complete: he possessed the largest urbanity, a power of being equal to all occasions, and his charm is that of a second nature or destroying the likeness. He evidently profited, as Mr. Howard observes, by the sound advice given him by Sir Joshua Reynolds, 'not so to imitate the old masters as to give a richness of hue rather than the ordinary hues of nature, but to paint what he saw,' but at the same time 'not to fall into the vulgar error of making things too like themselves.'

In speaking of the merits of Sir Thomas, his admirable portraits of beautiful children deserve especial mention, the engravings from some of which are universally known. Though Sir Thomas had in his childhood attempted historical compositions, which gave ample promise of future excellence, he was so absorbed by portraits, that he had no time for a greater proportion of his time to painting. Some of his pictures of the Kemble family may indeed be almost considered as historical; and in 1787 he exhibited at Somerset-House a picture of Satan calling his Legion, aftorded, in which he himself disdained as one of his best works. But the opinions of critics and connoisseurs on the merits of this celebrated picture are so different, and even so diametrically opposed to each other, that it would be evidently unsafe to admit it as a proof of either his ability or incapacity in the dignity of history.

While Sir Thomas was absent on the Continent, Mr. West, the venerable president of the Academy, died in March, 1820, and Sir Thomas was chosen, without opposition, to succeed him. He returned in April, loaded with honours and presents which he had received abroad, to meet with equally flattering distinctions at home, which he continued to enjoy without interruption till his death, which took place at his house in Russell-square, on the 7th January, 1830, in the 61st year of his age.

Though Lawrence had no school education, he had acquired a vast fund of various and extensive knowledge: he was well acquainted with the literature not only of his own country, but of the rest of Europe. His addresses to his friends from the infinite variety of his reading gave him a good deal of good advice, and delivered with a kindness of manner which proved his sincere wishes for their welfare and success.

To the merits of his brother artists, whether dead or living, he was ever just, and no feeling of envy or jealousy appeared in his writings to ascend to religion. A class of these were Oldati, who devoted themselves to more menial service. There were also Fratres ad succursum, assistant brothers, who were only a short seculum, while the professed lay-brother had the habit of the order. The institution of lay-brothers of the professed kind began in the eleventh century. The Jesuits termed their lay-brothers coadjutores. (Foshè's British Monachism, 4to ed., p. 263-269.)

LAYBACH. [ILLYRIA] LAYERING is a process by which the propagation of plants is effected by laying down or bending the shoots, so that a portion of them can be covered with earth. A shoot so operated on is called a layer, and the point which furnishes the layer becomes the root of the shoot, and so much disposed to emit roots that if their branches happen to come in contact with the earth they immediately begin to strike. But although it may be easily imagined that the observation of this common circumstance has led to the artificial mode, yet some means besides that of merely bringing a shoot in contact with the earth are found necessary for many plants on which this mode of propagation is practiced. The operation in which the artificial method is employed is:—When the shoot of a species not freely disposed to send forth roots has merely its bent part inserted in the earth, the woody matter organized by the leaves passes down to the roots nearly as usual; but if the communica-
tion along the alburnum is interrupted by an acute bend, twist, or incision, a callus will be formed, from which by degrees spongioles are emitted, and thus roots ultimately produced.

The stem of the shoot intended to form a layer should be dis¬
sected of leaves where it is to be covered with the mould, and a slit should be made on the bent part, or the branch should be twisted half round at the bend so as to disarm the woody tissue. The bark should be half or three-quarters ringed: the shoot is then fixed down by pegs or hooked sticks, cut down to within an inch or so of the ground, and covered with good mould, which must afterwards be kept tolerably moist. In general roots are emitted in the spring by the end of the season young plants are obtained quite fit for transplantation. Some plants however require to be left for two years on the shoots before they are removed, and there are some which can hardly be made to root at all in this manner.

Plants so situated as to render it impossible to bend their branches to the ground may nevertheless be layered by having their shoots introduced into a pot or box of soil ele¬
vated to them, and supported in a convenient position. This is a common practice among the Chinese, who cause branches of trees to root in this manner by partially ringing them, and covering the parts so ringed with a ball of clay, which is kept moist.

LAZZULITE, LAPS LAZULLI, occurs crystalline and masses; sometimes of the crystal a cube, but occurs in imbedded rhombic dodecahedrons. Cleavage parallel to the planes of the dodecahedron. Fracture uneven. Hard¬
ness 5 to 6. Colour azure and different shades of blue; streak, pale blue. Luster vitreous. Translucent, opaque. Specific gravity 2.76 to 2.94. Massive variety amorphous, sometimes in grains, im¬
bedded. On charcoal fumes, when pure, into a mountain. It is brought from Persia and China, and is employed in the manufacture of Ultramarine.

Analysis by Gmelin. By Fuchs.

| SiO2 | 49.0 Phosphoric Acid | 41.81 |
| LiO | 11.0 Alumina | 35.73 |
| Na2O | 16.0 Magnesia | 9.34 |
| K2O | 8.0 Silica | 2.10 |
| Cr2O3 | 4.0 Protioxide of Iron | 2.64 |
| MgO | 2.0 Water | 6.06 |
| CaO | 2.0 Sulphuric Acid | 97.68 |

It seems improbable that so different results should be obtained from the same mineral. Dr. Thomson admits the prescriptive acid; in Lydias by Fucis is therefore most probably the correct one.

LAZZARINO. [NAPLES.]

LAZZERETO is the name given to certain buildings and magazines which are annexed to support towns, chiefly in the Mediterranean, for the sake of keeping when the auth¬
ors have found the crews of ships and passengers arriving from Turkey, or other places where the plague, or other disease deemed contagious, is known to prevail. The persons thus confined are said to be in quarantine, from the Italian word quaranta, 'forty,' because the period of confinement for those arriving from actually infected places is forty days, after which, if no one has fallen ill, they are set at liberty.

A lazzeretto, or the house of the lazzeretto, consists of various detached buildings with courts between, the whole enclosed by a wall or stockade, placed in airy situations outside of the town, and on the sea¬
shore, and in some instances on a small island or rock near the coast. Besides the lodging-houses for persons in quar¬
eto there are large warehouses in which goods can or supposed to be capable, of communicating the disease, such as wool, cotton, leather, &c, are purified. This puri¬
fication is effected by spreading them out in the air for a length of time, and stirring and turning them about, which is done in hot or cold weather, or kept as long as necessary. When the smoke is observed by outdoors, and who, is it supposed, if there were any infection, would speedily take it. These 'guardians' are kept in strict qua¬
rantine, but are well paid for the confinement and risk. These establishments are kept under very strict regulations, any infringement of which is visited by severe penalties; and amounting in some cases to death. The principal and best regulated lazzeretti are those of Venice, Leghorn, Mar¬
seilles, Trieste, Genoa, Messina, and Malta. The name 'lazzeretto' is derived from St. Lazarus, who, in the Roman calendar, is the patron of lepers, and as leprosy was a very common disease in Italy and other parts of Europe during the middle ages, the hospitals in which lepers were confined obtained the name of lazzeretto, and the lepers themselves were also called lazzeretti, a word which is derived from the lazzeroni, or lowest class of the inhabitants of Naples, because, as some believe, of their dress, which resembles that which was worn at one time by the lepers. Houses for lazzeretti were first established in Venice, but the ear¬
est, and that the rules and tariffs of the other lazzeretti in Europe are essentially similar. In Venice the lazzeretto is a house at the city, by which the lazzeretto is conducted, was insti¬
tuted by a decree of the senate in 1448, during a time of pestilence.

LEA CRIVER. [ESSEX; HERTFORDSHIRE.]

LEACH, WILLIAM ELFORD, was born at or near Pit¬
smouth in Devonshire in the year 1790. He was brought up to the medical profession, and graduated as a physician, but devoted himself to the study of zoology, and attained, as at an early age, a high reputation at home and abroad, as an original and scientific naturalist. In 1813 he was appointed one of the curators of the natural history department in the British Museum, which situation he held until 1822, when his career was cut short by the loss of his health and reason, probably hastened on by too close application. He retired into the country, and shortly afterwards went abroad, where he spent most of the remainder of his life, residing chiefly in Italy, attended by a devoted sister. After a long and laborious residence of his studies, a great measure regained his mental faculties, and resumed his favourite occu¬
pations; the letters which he wrote to his scientific friends in England exhibit the same devotion to the study of nature which distinguished the brighter years of his life. He returned to his native country for a short time, but afterwards took up his abode again in Italy, where he died suddenly of cholera, on the 25th of August, 1836, at the age of 46.

Dr. Leach published many new genera and species in the various classes of vertebrated animals, particularly in birds, and it is in entomology and malacology that his labours are most known, and his improvements of the greatest importance. We are chiefly indebted to him for the first introduction of this country to a natural system of arrangement in entomology, and for the adoption of the general and scientific views of those subjects which originated with Cuvier and Latreille. Among his literary contributions the translations of the 'general panegyrics' and 'Classsical tran¬
actions,' on insects, and published a general arrangement of the classes Crustacea, Myriopoda, and Arachnidae, in the same work, which was considered as the best classification of those animals before the work of Dr. Milne Edwards ap¬
ppeared. In 1814 Leach was elected one of the 'Institutes of Na¬
sophical Transactions,' on the genus Octocitho, in which he endeavours to prove that it is a parasitical inhabitant of the gargantuan, or paper nautilus shell: he also wrote 'Malaco¬
traces podophthalma Britanniam,' which was illustrated with beautiful plates: eight parts of it were published in Lon¬
don in 1815-16. He was the author of the 'Zoological Misology,' three volumes of which came out in London from 1814 to 1817; and he wrote several articles in Brewster's 'Enquiries respecting the Present State of the Natural Sciences.' His principal work, 'The Natural History of the Mollusca of Great Britain,' is in the possession of his friend Mr. Bell, and has not yet been published.

LEAD. The properties of this metal are that it has a bluish-grey colour, and is of considerable brilliancy when fresh surfaces are formed by cutting; if it has not been cooled too rapidly, it is so soft, that even when in pieces of consider¬
able thickness, it may be easily bent. It soils slightly, so leaves a white powder on polished surfaces. It is found in natural form, or in cold crystallises in octahedrons. It is not a volatile metal, for in cold vessels it may be heated to whiteness without subliming. When exposed to the air it absorbs oxygen and carbonic acid slowly, and acquires a superficial coating of
barites, and in Greenland with cryolite and syngeneite iron.

Analysis by Dr. Thomson.

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Lead</td>
<td>58.12</td>
</tr>
<tr>
<td>Sulphur</td>
<td>37.6</td>
</tr>
<tr>
<td>Iron</td>
<td>4.25</td>
</tr>
<tr>
<td>Silver</td>
<td>0.5</td>
</tr>
</tbody>
</table>

**Seleniuret of Lead.**—Occurs massive. Structure granular. Colour bluish灰色; resembles fused and slaked sulphuret of lead, but is softer, and rather more blue. Luster metallic, but rather dull. Opaque. Specific gravity from 7.187 to 7.672. When heated in a tube sulphur sublime; by the blow-pipe on charcoal it burns with a blue flame, and the peculiar odour of selenium. According to the analysis of Rose, it consists of:

- **Selenium (Se):** 23.59
- **Lead (Pb):** 71.41

Having described the principal native binary compounds of lead, we proceed to notice those which are composed of an acid and oxide of lead, remarking that it is the protosilicate which only combines with acids.

**Carbonate of Lead.**—Occurs crystallized and massive. Primary form a right rhombic prism; cleaves parallel to the primary planes. Fracture conchoidal. Hardness 3.9 to 3.5. Brittle. Colour white, yellow, grey, and greyish-black, sometimes tinged green or blue by ores of copper. Luster on the fracture surfaces resinosous. Translucent, transparent, and doubly refractive. Specific gravity 6.3 to 6.6. Phosphates when powdered and thrown on hot coals. Soluble in nitric acid. By the blow-pipe coal decerperates, becomes yellow, and is reduced. **Massive varieties:** Amorphous; structure columnar, granular, compact. Analysis by Dr. John: Carbonic acid 15.5; oxide of lead 64.5. It occurs in most lead-mines, and is sometimes used as an ore of lead.

**Sulphate of Lead:** Anglesite.—Occurs crystallized and massive. Primary form a right rhombic prism. Cleaves parallel to the primary planes. Fracture conchoidal. Hardness 2.5 to 3. Colourless generally, but has sometimes shades of yellow, grey, green, brown, and black. Lustre nearly adamantine. Transparent, translucent. Specific gravity 6.23 to 9.31. Analysis by Klaproth: Sulphuric acid 24.5; oxide of lead 71; water 2. Occurs in Anglesley, Cornwall, the Harz, &c.

**Phosphate of Lead:** Pyromorphite.—Primary form a rhomboid. Commonly occurs in hexagonal prisms, and cleaves parallel to its planes, and to the truncations on its terminal edges. Fracture imperfect, conchoidal, uneven. Hardness 2.4 to 3. Colourless, yellow, or greenish, grey, brown, and grey. Lustre resinous. Transparent, translucent. Specific gravity 3.91 to 7.995. It also occurs botryoidal and reniform. Analysis by Wöhler: Phosphoric acid 15.72; oxide of lead 68.5. Occurs in most lead-mines, especially in those of Saxony. Oxide of lead also occurs in combination with certain acids whose bases are metallic.

**Arsenite of Lead:** Dolomantite.—Occurs in crystals and massive. Primary form a rhomboid; usual form an hexagonal prism, which cleaves parallel to its lateral planes. Hardness 3 to 4. Colour pale yellow, yellowish, and reddish brown. Lustre resinous. Transparent, translucent. Specific gravity 4.0 to 4.64, and 6.9 to 7.3. Analysis by Wöhler: Arsenic acid 21.59; phosphoric acid 1.32; oxide of lead 75.59; muriatic acid 1.89. Found in Cornwall and in France. It also occurs reniform. Structure compact, opaque. Lustre resinous. Colour brownish-red. Found in Siberia.

**Chromate of Lead:** Primrose.—Primary form an oblique rhombic prism. Cleavage parallel to the lateral planes of the primary form. Fracture conchoidal. Hardness 2.6. Colour grey, greyish, transparent. Lustre adamantine. Specific gravity 6.904. It occurs also massive; amorphous; structure columnar, granular. Analysis by Pfaff: Chromic acid 32; oxide of lead 68. It is found in Siberia and Brazil.

**Molybdate of Lead:** Carrithite.—Primary form a square prism. Cleavage parallel to the primary planes. Fracture slightly dulling. Hardness 3. Colour different shades of yellow, greenish, and red. Lustre resinous. Transparent. Specific gravity 6.69 to 7.68. It rarely occurs massive. Analysis by Berzelius: Molyblic acid 38.14; oxide of lead...
Tungstate of Lead : Scheelite of Lead.—Primary form a square prism. Cleavage parallel to the planes of the primary form. Fracture conchoidal and shining. Hardness 3. Colour yellow; luster metallic and translucent. Specific gravity 8.0. Analysis by Lampa-
dius—Tungstic acid 51.72; oxide of lead 41.28. It is found in Bohemia and Carinthia.

ide of lead 25.39; oxide of iron 0.63. Found at Tampico in Mexico, and Wanlockhead in Scotland.

There occur, besides the minerals which we have de-
scribed, some other compounds of lead and different metals, for an account of which we refer to Phillips's 'Mineralogy' and Dr. Thomason's 'Outlines of Mineralogy and Geology.'

We now proceed to mention some artificial compounds and salts of lead, confining our description to such as are most curious in a scientific point of view or most useful in the arts.

And first of the compounds of Oxygen and Lead, of which there are four; the first is the Suboxide of Lead.—When lead is moderately heated in contact with air, a grey powder is formed upon it, which according to Berzelius is suboxide of lead, and Dulong states that suboxide of lead is an alloy of lead and lead oxide, the former being the only true compound. It is a dark-grey powder, which is not soluble in acids, but resolved by them into protoxide and metallic lead. It is an important substance, and is a di-oxide, consisting of

One equivalent of oxygen 8
Two equivalents of lead 208

Equivalent 216

Protoxide of Lead; frequently called Mangan.—It may be procured by exposing lead to the action of heat and air, and is in fact so obtained in the process of making red-lead. It may also be obtained by decomposing nitrate of lead in a red heat. Its properties are, that it has a pale yellow colour; is insoluble in water, but readily dissolved by most acids, and is also taken up by the alkalis potash and soda, but not by ammonium. Litharge is also a semi-crystalline protoxide of lead, obtained in separating silver from lead ores. Of all the oxides of lead the protoxide is the only one which combines with acids to form salts, and they are all of them less or more poisonous. Protoxide of lead is composed of

One equivalent of oxygen 8
One equivalent of lead 104

Equivalent 112

Deutoxide of Lead : Red Lead : Muriate.—Is procured by exposing the protoxide to the long continued action of heat and air, by which it acquires more oxygen and becomes of a fine red colour. It is extensively used as a pigment, and is especially employed in the manufacture of flint glass. It is not soluble in the alkalis, nor does the acid form salts with it, but they act upon it so as to separate it into protoxide, which dissolves, and binoxide likewise, which remains unaffected upon it. It is partially decomposed, and gives out oxygen when strongly heated, and also by the action of sulphuric acid. It is composed of—

Four equivalents of oxygen 32
Three equivalents of lead 152

Equivalent 344

Binoxide or Peroxide of Lead is formed by treating the deutoxide either with nitre or acetic acid; when this is done the equivalent of red-lead is separated into two equivalents of protoxide, which are dissolved, and one equivalent of binoxide, which remains in the state of an insoluble brown powder. It is decomposed by the action of light, by a strong heat, or by being converted into protoxide of lead and oxygen. It is not applied to any purpose whatever, and consists of—

Two equivalents of oxygen 16
One equivalent of lead 104

Equivalent 120

Chloride of Lead.—When laminated lead is heated in chlorine gas, or when hydrochloric acid is added to a solu-
tion of acetate or nitrates of lead, chloride of lead is formed; when obtained by precipitation it is a colourless somewhat crystalline powder, which melts by the application of heat, and assumes on cooling a very yellow appearance, whence it was formerly called horn lead. It is sparingly soluble in water, and when a hot solution has been made, minute shining, colourless crystals of chloride are deposited on cooling; these have a sweetish taste, and are not altered by exposure to the air.

It is composed of—

One equivalent of chlorine 36
One equivalent of lead 104

Equivalent 140

Oxichloride of Lead is used as a pigment by the name of patent yellow, and is prepared by the action of protoxide of lead upon common salt; for this purpose common salt may be made into a paste with about five times its weight of litharge and water. Action immediately commences, the mixture becomes alkaline owing to the presence of soda, while the chloride of the salt unites with the protoxide of lead, and forms a white oxichloride, which by the application of heat becomes yellow; when it has been fused it acquires a crys-
talline texture on cooling.

It is probably composed of—

One equivalent of chlorine 36
Ten equivalents of oxide of lead 1129

Equivalent 1156

Sulphuret of Lead may be formed by melting a mixture of sulphur and lead-flings; in appearance it very much resembles lead, and is composed of—

One equivalent of sulphur 16
One equivalent of lead 104

Equivalent 129

It may also be obtained by adding hydrochloric acid to any solution of oxide of lead; the oxide of lead combines with the lead of the oxide, and a black precipitate is immediately formed, which, when dried and fused, has the usual appearance of sulphuret of lead.

Iodide of Lead is formed by adding a solution of lead of one of iodide of potassium; a yellow powder is precipitated, which is sparingly soluble in boiling water, and separates, on cooling, in brilliant flakes.

It is composed of—

One equivalent of iodine 128
One equivalent of lead 104

Equivalent 130

It has already been mentioned that acids combine only with the protoxide of lead; but with the several salts of great use in medicine, the arts, and scientific chemistry, they are formed.

Carbonate of Lead.—This compound is very largely employed as a pigment under the name of White Lead. Various processes are adopted for its preparation, the oldest (which is still preferred by many manufacturers) is that of exposing sheet-lead to the action of the vapour of vine-
gar, in earthen pots, heated by tanners' spent bark. It is also prepared by passing the carbonic acid obtained by burning charcoal into a solution of di-oxide of lead, which is separated into carbonate of lead, which remains in solution, and carbonate of lead, which is precipitated. The carbonate of lead is again converted into di-oxide of lead and anew precipitated. Carbonate of lead may also be procured by decomposing the di-oxide or nitrate of lead by carbonic acid or soda.

Carbonate of lead is a dense white powder, which is composed of—

One equivalent of carbonic acid 22
One equivalent of oxide of lead 112

Equivalent 134

It is decomposed by heat, which expels carbonic acid and leaves protoxide of lead, and also by the stronger acido.

Nitrate of Lead is formed either by dissolving the metal or the oxide in the acid; a colourless solution is thus obtained, which by evaporation yields colourless ochreous crystals of nitre. They decompose when heated moderately, and if strongly heated they are decomposed in nitrous acid vapour and oxide, protoxide of lead remaining in the retort. This salt is soluble in about 8 parts of

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water at 212°, crystals depositing as the solution cools; it is
useable in alcohol; the alkalis precipitate white hydrated 
oxide of lead; the carbonates, carbonate of lead; and 
hydrosulphuric acid throws down sulphur of lead.

It is composed of 

One equivalent of nitric acid 54
One equivalent of oxide of lead 112

Equivalent 166

When nitrate of lead is dissolved in water with an
additional quantity of oxide, it is formed either a di-nitrate or tri-
nitrate of lead, according to the quantity used; these are
both very slightly soluble in water, and decomposed by car-
one acid.

Sulphate of Lead is readily obtained by adding sulphuric
acid or a sulphate to nitrate of lead. It is a dense white 
substance, which is insoluble in water, little acted upon
by acids, but is dissolved by potash and soda. It is applied
to no particular use.

It consists of—

One equivalent of sulphuric acid 40
One equivalent of oxide of lead 112

Equivalent 152

Phosphate of Lead is also a white insoluble powder, but,
unlike the sulphate, it dissolves readily in dilute nitric acid.
Acetate of Lead, frequently called Sugar of Lead, is Very
largely employed for various purposes. It is prepared by
dissolving litarge in acetic acid, and evaporating the solu-
tion to the alkaline carbonates, which are dissolved by potash
and soda; they are colourless, nearly inodorous, and
have a sweetish astrangent taste. This salt is soluble in
about four times its weight of water at 66°, and much
more in boiling water. It is decomposed by the same sub-
stances as decompose the nitrate, and with similar results.

It is composed of—

One equivalent of acetic acid 51
One equivalent of oxide of lead 112
Three equivalents of water 27

Equivalent 190

When this salt is boiled in water with an equivalent of
oxide of lead, the acetate of lead is formed, which is used in
medical practice under the name of Goulard's Extract of Lead; and
it is employed also in the manufacture of white lead, being
decomposed by carbone acid.

Chromate of Lead is largely employed as a pigment. It is
of a beautiful yellow colour, and is prepared by mixing a
solution of acetate or nitrate of lead with one of chromate
of potash.

Characters of the Salts of Lead.—Those which are so-
able have a sweetish taste: they give a white precipitate
and so-called silver nitrate, which are dissolved by potash
and soda, but not by ammonia. Ferrocyanide of potassium
yields a white precipitate of ferrocyanide of lead; sulphuric
acid and sulphates throw down insoluble white lead of
the same constitution. Lead acetate is a white precipitate
black sulphuret of lead. Insoluble of potash and chromate
of potash give yellow precipitates. Chlorides also throw down chloride of lead from solutions, unless they are
extremely dilute. Zinc and cadmium separate metallic lead.

Alloys of Lead.—Lead fused with a fourth of its weight
of potassium gives a solid brittle mass; it also unites with so-
dium, but the compound is less fusible. Alloys with anti-
monty lead forms type-metal, and common pewter used in
foundries; tin and lead in equal parts, form tin and lead
for moulcls and solder. Mercury and lead combine very readily,
but with copper it is difficult to unite it; with brass it
combines easily, and with iron it forms two alloys. When
tin and lead are fused together, the portion at the bottom
of the crucible contains lead with a little iron, while the
upper portion is iron with a little lead.

LEAD.—History, Manufacture, and Trade.—(French,
Flomb; Italian, Flombo; Spanish, Flonmes; German, Blech;
Dutch, Loet; Russian, Svinets). When newly melted,
lead is of a silvery whiteness, but when it has been used
for a short time exposed to the air it assumes a dull and
greyish tinge, which is more pronounced in tin and lead.
Lead is easily malleable, and exhibits this pecu-
larity, that it does not increase its specific gravity nor
become harder through compression when subjected to the
hammer. It is only a very slight degree elastic, and is
consequently not sonorous.

Lead was known and used by the Greeks and Romans,
for various purposes, among others it was employed for
pipes to convey water, just as it is now. The lead-mines of
this island were worked by the Romans, of which we have
evidence in the pigs of lead preserved in the British Mu-
seum, and stamped with the names of the emperors Domi-
nian and Hadrian. The early writers in this country, when
speaking of the metals, are so confused, that it is by no
means easy to ascertain in what of them they mean lead.
Confusion is so great, that Sir George Harrison, when
writing in exposition of the stannary laws of England, says,
'In a liberal construction, copper is tin.' The framers and
early exponents of those laws fell into some strange mis-
understandings regarding every substance that could be
used for tin; and it derives the rights of the duke of Cornwall
over tin from the circumstance of its containing silver, while
lead is not considered a royal metal, because it contains no
silver; the facts being the reverse, inasmuch as a consider-
able proportion of silver is frequently combined with lead,
while it is very rare to find the smallest trace of it in tin.

The principal lead-mines in Great Britain are in Corn-
wall, Devonshire, Somersetshire, Derbysbire, Durham, Lan-
cashire, Cumberland, Westmoreland, Staffordshire, Den-
bighshire, Merionethshire, and Montgomeryshire; in
Scotland at the Lead Hills on the borders of Dumfriesshire
and Lanarkshire, in Ayrshire, and in Argyleshire. Lead
mines are also found in Ireland, the counties of Armagh, Wex-
ford, Wicklow, Waterford, Clare, and Limerick. The ac-
count of the produce has ever been obtained, the pro-
prietors or occupiers of the principal mines declining, from
prudential motives, to give any statements to that effect.
An estimate, which was made of the quantity of lead smelted
in England and Wales in 1828, was generally be-
lieved to be near the truth, and this carried the produce to
45,500 tons; it is thought that the quantity has varied very
little since that time. No estimate has been made of the pro-
duce of the Irish mines, but it is not considered large.

The ore of lead, when extracted from the mine, is called
galaene, and is combined with various earthy matters.
The first processes subsequent to its extraction are those
of crushing or puddling, and raising the metal to a
state of fusion in order to separate as far as possible by mechanical
means the impurities from the metal, which is then
smelted, sometimes in a common smelting-furnace and
sometimes in a reverberatory furnace, both of which are very
similar in form and construction to the furnaces used for
smelting and puddling iron. [IRON MANUFACTURE] When
the fusion has been continued long enough to cause the exis-
tion of the sulphur contained in the ore, and the separa-
tion of the earthy portion as slag, the molten metal,
which from its smaller specific gravity floats on the melted
metal, is removed from the furnace through an aperture
provided for the purpose, and the lead is allowed to run into
a large iron pan, from which it is bailed into cast-iron
moulds while still molten.

The scoria still contains a portion of lead, and is sub-
jected to the heat of another furnace, called a slag-
hearth, for its separation, which occurs upon its fusion; the
metal then falls into a cavity, whence it is run and also cast
into pigs. In this state lead always contains more or
less of silver. The proportion is sometimes exceedingly
minute, being not more than 1 ounce or 15 ounces per
ton in the metal raised in Derbyshire and Shropshire,
while in every ton of lead from the Mines of Cornwall
there is found from 30 to 30 ounces of silver. The produ-
of other mines contains the more precious metal in
various proportions between these two extremes. The ex-
traction of the silver is always performed when it exists
in a proportion sufficient to pay the expense of the process,
which varies in different localities according to the cost of
fuel. The process of extraction, which is called refining,
depends upon the well-known circumstance, that lead, when
heated in a large reverberatory furnace, is thrown into the
air, and is converted into an oxide, while silver does not
undergo any such change, but retains its metallic form at
almost any temperature. A cupel, which is a shallow dish
of adequate diameter, is filled with a mixture of burnt bones
and tires, and when heated, upon which the silver has
been placed in the furnace. As soon as the lead is melted,
a blast of air, introduced by the usual means, is made to play
forcibly upon the surface, and in a short time a crust of yellow

3 B 2
oxide is formed, and this is driven away, as fast as it appears, to the opposite side of the furnace, until all or nearly all the lead has been thus converted to an oxide. The silver, which remains behind, is still combined with some portion of lead, and must be subjected to a second process similar to that described above in order to obtain it in sufficient purity. The litchage, into which the lead has been thus converted, is easily restored to its metallic state by again heating it in a furnace in combination with carbonaceous matter, to which it gives up most of its weight of oxide matter when thus treated, varying according to the quality of the lead. The oxide is very volatile at high temperatures, and so much of it escapes in a vapourous form during the process of refining that the difference of weight before and after refining is generally not much over two-fifteenths.

A new process for the extraction of silver from lead has been successfully used in the county of Durham, and was described by Mr. F. L. Pattinson, to the Mineralogical Section of the British Association at its recent meeting [1838] in Newcastle. Having observed that in a mass of melted lead crystals were formed as the temperature was diminished below the point of fusion, Mr. Pattinson conceived that these crystals might be more homogeneous and would consequently be united with a smaller proportion of silver than the remaining uncrystallized mass. This idea, proving upon experiment to be correct, has been made practically useful by subjecting the lead to be refined to a repeated process of crystallization by means of a simple apparatus. The furnace was of a series of hemispherical iron pots, each capable of holding five tons of lead, ranged side by side, and furnished with separate fire-places. The mode of operation is as follows:—One of the pots is charged with lead, and when this is heated, the surface is diminished in order to remove impurities as are thrown up. The fire is then withdrawn, and the lead is suffered to cool gradually. When the process of crystallization begins, the crystals are withdrawn by means of ladles with perforations to allow the uncrystallized part to run through, and these crystals are transferred to the second pot, when they undergo a second melting and crystallization, and subsequently a third in another pot. The crystals collected at this third process are found to contain no more than one-twentieth of an ounce of silver, and are consequently melted and cast into pigs for sale as refined lead.

The process here described is repeated with the remaining portion of the lead until it is so rich in silver as to contain from 200 to 300 ounces per ton, after which the silver is extracted by the old process of cupellation. As the proportion of the lead to which this wasteful process is applied does not exceed one-twentieth of the whole quantity of metal, the loss is diminished in a like proportion, and seldom exceeds six ounces, by which means the expense of extraction of silver is so far economized, that it will answer to apply the process to lead which originally contains any proportion greater than three ounces of silver to the ton.

Independent of the great saving of lead, it is computed that the whole mass of the crystals produced at Durham would amount an annual gain to this country of 54,000 ounces of silver, through the larger quantity of metal which may be profitably subjected to the process of separation.

The most extensive use of lead is in the form of sheets, and pipes, or tubes, for the passage of liquids. To make sheet-lead the pigs are brought to a state of fusion in a large pot or cistern, near to which is placed the table on which the sheet is to be cast. This table, which is usually from 18 to 20 feet square and six feet wide and high, and indeed wooden tables are still frequently used, but in many works cast-iron has of late been substituted. The wooden table has its surface protected by a layer of fine chalk, which is wetted and spread evenly and firmly over it before the melted lead is poured on. To prevent the lead from running over the sides a ledge is provided, two or three inches thick, and two inches high, which forms the margin of the table. An instrument called a strike is also provided, which, by means of a rod, can spread the melted metal evenly over the table. This strike, which is made wider than the table, rests by its two ends on the ledge, the size or diameter of the part within those ledge being varied according to the intended thickness of the sheet, which will be equal to the distance between the lower side of the strike and the layer of sand. In casting the sheet the fused metal is taken from the cistern with an iron tube, and put into a triangular shaped iron shovelf or, placed at the head of the table, which peeling

raised so as to pour out the lead upon the table, the strike is brought into use to spread it evenly over the whole surface; the surplus, if any, falling into a vessel placed for its reception at the foot of the table. A sheet of lead weighs nearly two and one-half pounds to the square foot, and the weight will be in proportion to the thickness of the sheet. The thickness of sheets of lead is frequently reduced by means of heavy rollers worked by steam-power. Sheet-lead of different thicknesses is described by those who use it as being of so many pounds weight to the square foot.

The following table shows the thickness, in decimal parts of an inch, corresponding to certain weights per square foot—

<table>
<thead>
<tr>
<th>Weight (pounds)</th>
<th>Thickness (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>0.18</td>
</tr>
<tr>
<td>11</td>
<td>0.17</td>
</tr>
<tr>
<td>12</td>
<td>0.16</td>
</tr>
<tr>
<td>13</td>
<td>0.15</td>
</tr>
</tbody>
</table>

It will be easy to compute from the foregoing figures the weight per superficial square foot of sheets of any other given thickness. The descriptions most commonly used for roofing, guttering, and the like purposes, are comprised within the limits above stated.

Lead pipes are sometimes made, when great exactness of shape is not required, by bending a length of sheet lead of the necessary width over a mandrel, and soldering the edges together, the ends being welded by heating them, and afterwards cooled by pouring water upon them. This process is described in 1782 by a workman named Inman, and is now in use in various parts of the country, although it is by casting and drawing. The casting-box employed is an iron cylinder made in two parts, and put together longitudinally with flanges; inside of this cylinder is placed an iron rod or core, which is so fixed as to be concentric to the cylinder, and when the metal is poured in, in which the melted lead is poured. When this is set, the core is removed and the cylinder opened, so as to withdraw the pipe, which is much thicker than is needed, and must be lengthened, while its substance is reduced, by melting it through a succession of holes in steel plates, diminishing gradually in diameter similarly to the method employed in drawing iron rods. [Iron Manufacture.] The machinery employed for this process has at different times been much improved, but the improvements are of a construction so intricate that it is now of rare occurrence to meet with an imperfect pipe.

Without entering into any description of the various machines and utensils made with this metal, whose qualities or uses depend not so much upon the material employed as upon their form and construction, it may be proper to give some explanation of the mode of manufacturing leaden shot by pouring the melted metal from a great height into water. This process was invented in 1782 by a workman named Sansom, whose patent for the expense of the device, which was much cheaper than the expense of the shot, was adopted by some brass founders, and still continues in use to this day. Without entering into the details of the process, it is now in common use. In order to give to the lead the quality of assuming a more perfectly globular form in cooling, the metal is previously alloyed with arsenic in the proportion of two lbs. to one hundred-weight, or with a small quantity of mercury, which latter is used in order to obtain an objection caused by the poisonous quality of arsenic. Shot formed by granulation are made in a high tower, in the top of which the melting-room is placed. Close to the top of this tower is a former or perforated plate, from which a portion (determined by experiment) of the smoke produced in melting the metal is placed, when the metal is ladled into it. Being somewhat detached by the smoke, it is partially cooled and divided into separate portions, which pass through the colander in the form of globules, which follow in such rapid succession as to have the appearance to a cursory observer, of a continued stream. These globules fall into a tub of water placed on the lower floor of the tower, and this tub is then filled with lead shot, and a small proportion of copper is added, perhaps a hundredweight or more of either, so that the shot may pass through and be collected. What remains are transferred to the sieve next in fineness, to separate shot of the second size, and so on in succession. The process of separating the imperfect shot is very simple, and is thus
performed:— A shallow wooden tray is suspended by cords from the ceiling of the room, and into this a certain quantity of shot is put: by raising one end of the tray, and giving it a motion from side to side, the shot will roll about, each and perfectly spherical finding their way off the tray into a reservoir placed at its lowest side, while those which are of imperfect form run against and are detained by the sides of the tray, so that they can be collected in a separate vessel after the perfect shot have all run off. The shot thus sorted are then polished by putting about half a ton together into an iron barrel which this quantity will nearly fill. By means of a rotary movement given to the barrel, the shot are made to rub against each other, and thus acquire a black color and a lustrous appearance.

The quantity of lead produced in this country is much beyond what is wanted for home use, and the surplus is necessarily exported. The trade in this metal with foreign countries and British dependencies, during each of the last ten years, has been as follows:—

<table>
<thead>
<tr>
<th>Year</th>
<th>Imported</th>
<th>British</th>
<th>Exported</th>
<th>Shot and</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1828</td>
<td>2,479</td>
<td>1,784</td>
<td>10,602</td>
<td>£177,983</td>
<td></td>
</tr>
<tr>
<td>1829</td>
<td>1,508</td>
<td>1,700</td>
<td>6,834</td>
<td>114,555</td>
<td></td>
</tr>
<tr>
<td>1830</td>
<td>662</td>
<td>859</td>
<td>7,142</td>
<td>106,798</td>
<td></td>
</tr>
<tr>
<td>1831</td>
<td>1,222</td>
<td>1,144</td>
<td>5,777</td>
<td>96,327</td>
<td></td>
</tr>
<tr>
<td>1832</td>
<td>1,090</td>
<td>937</td>
<td>12,181</td>
<td>144,653</td>
<td></td>
</tr>
<tr>
<td>1833</td>
<td>793</td>
<td>637</td>
<td>9,015</td>
<td>120,714</td>
<td></td>
</tr>
<tr>
<td>1834</td>
<td>963</td>
<td>286</td>
<td>5,672</td>
<td>101,513</td>
<td></td>
</tr>
<tr>
<td>1835</td>
<td>1,376</td>
<td>1,106</td>
<td>11,082</td>
<td>159,144</td>
<td></td>
</tr>
<tr>
<td>1836</td>
<td>1,748</td>
<td>1,023</td>
<td>9,769</td>
<td>122,025</td>
<td></td>
</tr>
<tr>
<td>1837</td>
<td>1,806</td>
<td>1,520</td>
<td>12,743</td>
<td>155,257</td>
<td></td>
</tr>
</tbody>
</table>

The above quantities are exclusive of litharge, red lead, line lead, and lead ore, which are every year exported in considerable quantities. The export of British lead, in all forms, during each of the foregoing years, has been as follows:—

<table>
<thead>
<tr>
<th>Year</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1828</td>
<td>13,258</td>
</tr>
<tr>
<td>1829</td>
<td>1,544</td>
</tr>
<tr>
<td>1830</td>
<td>1,564</td>
</tr>
<tr>
<td>1831</td>
<td>1,720</td>
</tr>
<tr>
<td>1832</td>
<td>1,810</td>
</tr>
<tr>
<td>1833</td>
<td>1,732</td>
</tr>
<tr>
<td>1834</td>
<td>1,658</td>
</tr>
<tr>
<td>1835</td>
<td>1,835</td>
</tr>
</tbody>
</table>

The foreign lead imported is already almost wholly supplied by the Russian, the produce of exceedingly rich mines situated at Mur in Granada. The quantity furnished by these mines has fluctuated greatly; a circumstance, in all probability, owing to the unsettled state of the country. The greater or the produce of the unsettled states of Spain has a great influence on the price of lead in every market of the world; and times has acted injuriously upon the mine-owners in this entry, who have however, during the last few years, been raising great profits. The market-price of lead in London is at the close of the year 1837, has been:—

<table>
<thead>
<tr>
<th>Year</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1829</td>
<td>£17 17 0</td>
</tr>
<tr>
<td>1830</td>
<td>13 10 0</td>
</tr>
<tr>
<td>1831</td>
<td>14 15 0</td>
</tr>
<tr>
<td>1832</td>
<td>12 10 0</td>
</tr>
<tr>
<td>1833</td>
<td>14 0 0</td>
</tr>
</tbody>
</table>

The principal markets for English lead are Russia, New-Holland, the British possessions in India, Brazil, the British colonies in America. The produce of the Spanish lead-mines, and its distribution in each of the years 1836 and 1837, as stated by a competent authority, was as follows:—

<table>
<thead>
<tr>
<th>Year</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1836</td>
<td>1837</td>
</tr>
</tbody>
</table>

The estimated produce of the mines, has been

<table>
<thead>
<tr>
<th>Years</th>
<th>25,000</th>
<th>15,000</th>
</tr>
</thead>
</table>

The exports to France, have been

<table>
<thead>
<tr>
<th>Years</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1830</td>
<td>16,700</td>
</tr>
<tr>
<td>1831</td>
<td>7,000</td>
</tr>
<tr>
<td>1832</td>
<td>1,200</td>
</tr>
<tr>
<td>1833</td>
<td>800</td>
</tr>
</tbody>
</table>

The lead-mines have been opened and worked upon a scale in Missouri, one of the United States of North America. The total produce of this metal in the United States, in each of the ten years from 1826 to 1835, the latest as to which the accounts have been made public, was:—

<table>
<thead>
<tr>
<th>Year</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1826</td>
<td>1,042</td>
</tr>
<tr>
<td>1827</td>
<td>2,720</td>
</tr>
<tr>
<td>1828</td>
<td>5,036</td>
</tr>
<tr>
<td>1829</td>
<td>4,503</td>
</tr>
<tr>
<td>1830</td>
<td>3,719</td>
</tr>
</tbody>
</table>

LEAD, MEDICAL PROPERTIES OF. In a purely metallic state, lead produces no action on the human system, except such as arises from its mechanical properties; but as soon as it has become oxidized, it can combine with the elements of the skin, and produce several injurious effects, according to the nature of the substances it reacts with; hence even a leaden bullet, swallowed, has given rise to the symptoms characteristic of the presence of lead. In whatever form lead is habitually applied to the body, it is apt to bring on the train of peculiar symptoms: the inhalation of its fumes, the localized contact of any of its compounds with the skin, the prolonged use of them internally as medicines, or externally as ointments and lotions, and the accidental introduction of them for a length of time, with the food, may, sooner or later, equal induce colica, pneuma, or painters' colic. Of all exposures none is more rapid or certain than breathing the vapours or dust of the preparations of lead. (Christison.) Thus the workmen at Lead Hills in Lanarkshire who prepared medicinal lead-calcium until they work at the smelting furnaces. The action of lead on the human frame differs greatly according to the kind of preparation of lead, the quantity employed, the length of time or frequency of exposure to it, and the channel of its introduction into the system. If inhaled, it is less injurious than if taken by the mouth; even in small doses, produce almost immediate effects; while if taken into the stomach it is much slower, and a considerable quantity is requisite to produce serious consequences. In the latter instance the effects are both local and remote: 'One class of symptoms indicates inflammation of the alimentary canal; another, spasm of its muscles; and a third, injury of the nervous system, sometimes apoplexy, more commonly palsy, and that almost always partial and incomplete. Each of these classes of symptoms may exist independently of the other two; but the last two are more commonly combined.' (Christison On Poisons, p. 511.)

The rapidity of action is also determined by the solubility of the preparation or salt of lead; while in general the effects are both local and remote: 'One class of symptoms indicates inflammation of the alimentary canal; another, spasm of its muscles; and a third, injury of the nervous system, sometimes apoplexy, more commonly palsy, and that almost always partial and incomplete. Each of these classes of symptoms may exist independently of the other two; but the last two are more commonly combined.' (Christison On Poisons, p. 511.)

The danger of using water from lead pipes or cisterns was known even to the Romans; nevertheless they are still extensively used, and the rarity of any fatal results shows that the risk has been much overrated. This is sufficiently explained by the protecting power of the insoluble salts of lead, formed by the decomposition of the ingredients of the water from the mixture of lead, which hinders the subsequent supplies of water from coming in contact with the metal. Waters however which are remarkably pure, and particularly distilled waters, dissolve the lead, and becoming impregnated with it, cause serious accidents. But waters which abound with calcareous salts, or hard waters, speedily encrust the interior of the cistern, and remove the source of danger. The more impure the water, the more certainly will it form a protecting incrustation; hence it is that the waters of the Thames, which are much safer than others, after serious effects from standing in leaden cisterns previously to being used. No salt should ever be drunk or employed for culinary purposes out of new cisterns; but water should be allowed to stand in them for several days without being removed, for only after a crust has been formed does the water become safe; or to expel this, a little phosphate of soda or iodide of potassium may be added, or a few drops of sulphuric acid may be used.
Acetate of lead should always be dissolved in distilled, not in common water. It is a most improper application to inflamed cornea whenever that is ulcerated, as it forms a white compound which is apt to get imbedded in the cornea.

The diseases in which it proves most useful are increased discharges either from mucous surfaces or in hemorrhages. In cases of inflammation of the nose and of the sinus maxillaris, when combined with opium, it is a most efficacious remedy (Dr. Graves, in Medical Gazette, Oct. 14, 1837); in fevers attended with diarrhoea it is also useful. Combined with opium on which boiling water has been poured, it forms a most grateful waft to eat inflamed surfaces. In all cases care must be observed in its use. In poisoning by acetate of lead or by litharge, the best antidotes are sulphate of soda (Glauber's salts), sulphate of magnesia (Epsom salts), or alum, to decompose or form an insoluble compound, or to impart a disagreeable taste, or emetics of sulphate of zinc may be given. [PAINTER'S COLIC.]

LEAF. BLACK. PLUMBAGO. Lea, The, is an expansion of the bark of a plant, from whose axil a leaf-bud is developed. It is usually thin, and traversed with one or more veins, composed of woody and vascular tissue; sometimes it is fleshy, and occasionally cylindrical, or nearly so. Its veins form a double stratum, the outer of which is composed of a single layer of cells, and the lower with the liber of the branch on which it grows. When leaves have been macerated long enough, it is easy to separate these two strata. The veins are held together in a compact group, of which a portion is sometimes found to be epidermis pierced by stomates or openings, supposed to be for the purpose of respiration. A leaf is either united to the stem by means of a petiole or stalk, or it is sessile, that is to say, seated on the branch without an intermediate stalk; through the petiole pass the veins before they can expand into the broad or green part forming the blade of the leaf. When the stem is angular, the leaf is not con- fined to the angles or the spaces between them, but grows from either indifferently, only uniformly in the same species. The petiole is usually articulated with the stem, rarely with the blade of the leaf; the latter however sometimes happens, as in the orange. It usually loses itself in the parenchyma of the blade, but sometimes passes beyond it, and in compound leaves often forms a tendon or spine. Sometimes, as in the orange and in Nepenthens, and some other plants, it assumes the appearance of the leaf itself. Occasionally, as in New Holland Acaenas, it is the only part of the leaf that the plant possesses. In the cap- fery, and, in the opinion of some botanists, it is what we call the leaf in the majority of Endogens; the latter how- ever is an opinion but little held. It is not uncommon for a petiole to produce a pair of bracts, or to become into a sheath (sheath) surrounding the stem, as in grasses, or in other plants. Some writers have believed this to be a special organ, because in certain instances leaves have both a flat sheathing base and a tapering body bearing the blade; but in such cases there is nothing more than a petiole dilated at the base and contracted at the apex.

Some leaves are furnished with an appendage, which, in grasses is a thin membranous body arising from the base of the lamina, and in palms is a coarse net, formed, as is said, of tissue belonging to the veins of the leaves.

When leaves have but one blade, they are simple, as in the apple; but when there is more than one blade, each seated on a ramifications of the petiole, a leaf is called com- pound. One of the external form of the leaf there are endless modifications. Between 200 and 300 are enumerated by Bischoff. (Lindley's Introduction to Botany: Bischoff's Handbuch der Botanischen Terminology.)

Their normal figure is oval, produced by two arcs which intersect each other at various angles. They are con- sequently, the one side being exactly like the other; here and there however instances to the contrary we found, especially in Ulmaceae and Begoniaceae, where the two sides are more or less convex. Orchidaceae the two sides of the apex are unequal; such leaves are called oblongs or ovals.

The substance of the leaf consists of parenchyma, connecting the veins of woody and vascular tissue. It differs greatly in different plants, and appears to be so arranged as to most favor the functions of the specific in which it is found. Usually the cells of parenchyma belonging to the upper
surface are plated perpendicularly upon the epidermis, while the under surface is parallel with it; but this varies very much, and it often happens that the arrangement of the parenchyma is alike on both sides of the leaf. All that appears uniform with respect to this subsidence is that it contains grains of chlorophyll in abundance, that from the scarious edges of the leaves, and that the latter are universally in communication with the stomates. The usual cause of the under side of leaves being paler than the upper is that the parenchyma is more extensive there than on the other side.

In their position leaves are usually either alternate or opposite, in pairs upon the stem; in some however there are more than two leaves placed on the same plane, which are called verticillate. But when leaves are so closely arranged upon the stem that they are for the most part a true cone, or cone apple, the young shoots of asparagus, and in all leaf-buds, it universally found that they indicate a spiral direction; and observation has shown that in fact this is the real plan of arrangement, however much it may be obscured by one cause or other. The subject of spiral arrangement in leaves has been treated as a mathematical question by Messrs. Schimper, Braun, Bravais, and others. (Link, Element, 1, 448, ed. 2.)

Independent of the variations in form, leaves occasionally assume extraordinary appearances. Of this nature are those which, developing under water, form only their veins, without any connecting parenchyma, and consist of delicate thread-shaped segments. Another kind are those which the leaves, in consequence of their function, are Nephelos. Sarracenia, Dischidia, etc., in which the entire part of the leaf is rolled up so as to form a cavity capable of holding water. When such bodies have a lid, the latter is always the lamina, and the pitcher itself the modified base. In this country we have something of the kind in Urnella, which forms under water little transparent bags, determined to be petioles by their analogy with the same parts in exotic species, in which a lamina also exists. For in this country we have something of the kind in Urnella, which forms under water little transparent bags, determined to be petioles by their analogy with the same parts in exotic species, in which a lamina also exists.

For this reason a plant must be considered a compound being, analogous to polyphys and similar zoophytes. As the leaf-bud is of this essential importance to a plant, nature takes the utmost care to guard its delicate internal tissue from accidents. For which purpose the external scales are filled and divided by air, and consequently form numerous non-conducting plates; or they are in addition clothed with a thick fur, with a soft resin, or with other similar secretions.

The leaf-bud is always produced in the axil of a leaf, and placed in immediate communication with the cellular horizontal system of a plant, of which system it is a peculiar development; and it is especially deserving of notice, that all leaves or modifications of leaves, be their external form or colour what they may, are capable of forming leaf-buds in their axils.

The manner in which the scales of a bud are packed varies very much; if we suppose them to be looked at when cut transversely, the sections will represent the following appearances, to which the names added at the foot of the wood cut are technically applied.
is the sixtieth part of a degree. The variation of the degrees of latitude is not sufficient to make this measure sensitive to the different purposes of navigation, but the league of our sailors may be described and easily remembered as 3'456 statute miles of 1760 yards each. The same marine league is used by the French and other nations: besides which the French have divided the marine league into two smaller units: the tour de leuca, or tour (or lierne, in some of the provinces ligues), the first of 2000 toises, or 2'42 English statute miles, which is the legal posting measure; the second of 25 to the degree, or 27 English miles. These are selected from among the French four-mile measures for their celebration, and not as being the only ones: for before the Revolution there was no legal itinerary measure, and the length of the league varied from province to province. (Pauet.)

The term, ancient English law writers is necessary to be determined before the rights given by many charters can be defined; but unfortunately the length of this measure is enveloped in utter confusion. The modern lawyers, we believe, evade the question by setting it down as a mile; thus the legal maximum distance between two markets, which was certainly seven leuca, is now called seven miles. We shall, in the present article, collect a few testimonies on the length of the leuca, and must leave the reader to form the opinion which he can upon the varying presumptions which they add.

By citations in Ducange, Pauet, &c., it appears that Hesychius distinctly describes the /*leuca*/ and Jerome, Jorandes, &c., the leuca (stated by Camden to be derived from the Greek name //leukos//) as a Clintonian league of 10 statute miles, and the original Gallic league was set down by the Romans as a mile and a half of their own measure, which was in all probability a rough estimation, first used in the itineraries of Antiquus. In his work //Antonii peregrinatus// there is given a table of different itineraries, and he frequently gives in leagues (always in whole numbers), which are in every instance reduced to Roman miles at the rate of a mile and a half to each league. (See also Amm. Marcell., xi., c. 12.) Hence, taking the Roman foot at 11'62 English inches (which is a mean between the most trustworthy measures) and the pace of five feet at 58'1 inches, the Roman mile of 1000 paces is 1614 English yards, and the leuca was therefore 2421 yards, subject to the error of the Roman mile; or 1'376 modern English miles, with the same reservation.

This leuca in all probability was brought by the Normans into England. It is true that the Saxon charters of Ingulfus describe distances in leuca; but the genuineness of these charters is now considered more than questionable, and perhaps this very circumstance is a presumption against them. But the leuca soon began to vary in size. Ducange cites an old morlogist who speaks of two leuca, the one legal, the other commercial, varying much in different countries. In the confusion incident to the league, it will be worth while to remember that it was not uncommon, when a measure was found too short for convenience, to double it without altering its name: thus the Roman mile and half (1540) became the furlongs. It seems that by John Dory, and given the //penny of two pence//. The registers of Battle Abbey (Sir H. Ellis) and the //Monasticon Anglicanum// (Ducange) describe the leuca as containing 124 quaraniones, or furlongs. Now the furlong (long-furlong) is always 40 perches, and the perch, though varying much, yet was settled early at 164 feet. This gives a modern statute mile and a half to the leuca; so that a certain set of old authorities contemnasse the notion that the leuca was in their time very different from that of the French, while to take into account any possible variations of the foot: since all the information we can obtain is too rough even to make the whole difference between the Roman and modern mile appear of consequence.

The earlier statutes do not define the itinerary measures; confining themselves entirely to those by which land and goods were bought and sold. And the itinerary measures seem to have been on the increase, perhaps for the following reasons: the confiscation of towns, monasteries, &c., was usually defined as extending a leuca or a given number of leuca in every direction from their precincts, so that it became the interest of these powerful bodies to make the league as long as possible. The old French term ban-liue, banliue, bann-leuce, or league of the edict or decree, which was in the space over which jurisdiction was granted. Ingulfus, in his //Itinerario//, tells us a little into the secret when, speaking of his own monastery, he says, 'Prudentissimi metatres, contra malitiam emolumus nostrorum piasissim providentia, potius plus quam minus ponere voluerunt.' The same Ingulfus informs us that in his time the usual league was of 27 English miles, and therefore in 1760 yards only, and the Roman mile was marked //by// metatores, //the// pace be meant: but he adds that the English, adopting a Norman word to their own measure, frequently spoke of leuca when they meant miles. But it may be questioned whether the miles and leagues were the only and most acceptable words in writings or charters, at least in England: in several continental countries the term mile never became vernacular, and mile was therefore translated by league.

This is sufficient evidence to show, that whatever the mile of a later date may have been, the leuca was generally two miles; though instances occur in which it is still described as 1500 paces. The following are extracts with which we have been favoured from manuscripts in the British Museum. In the registers of the monastery of Canterbury (of the fourteenth century) we have the following: //Mensura unius pollicis incipit ex transverso radicum unguinum pollicis. Tris pollices unam palmam faciunt; quatuor palmi faciunt unum uncias. Pess et unum unciae faciuntforums. Sex parvi cubiti faciunt cubitum magnum. Quaque pedes faciunt passum unum. Centum vintigint quinque passuum faciunt stadium unum. Octo stadia faciunt unum miliaire. Duo miliaires faciunt unam leuca.// This gives a leuca of 376 yards in the old vernacular.

Bracon (Henry III) and Fleta (Edward I) both assert (see the citations in Cowell, Comyns's //Digest//, &c.) 6 leagues and half a league and the third part of a half (or 6 leagues) as being the distance to two markets which do not injure each other: because 20 miles is a reasonable day's journey: now (both of them say) if the dieta, or day's work, be divided into three parts, the first is for going to the market, the second for business, and the third for returning. This appears to mean that no market should be established within a third of a day's journey of any one who is already within a third of a day's journey of the established market, so as to give him the option of going to either: that is the two markets must be at least //of 20 miles apart, when the distance is supposed as the distance of 6 leagues. It shows that the leuca is two miles. This quotation is important, as establishing the meaning which the old law writers attached to the word.

It may then, we think, be confidently asserted, that the league of 376 yards and a half in length, which was during the first century of its existence, became lengthened, until it remained fixed at two of the miles of the day. It appears also that this length of two miles was a settled league at so early a period, that it is the measure of our oldest law writers, and of most of the oldest charters. It depends therefore upon the mile of the thirteenth and fourteenth centuries; and we must refer to the article Mile for the discussion of its absolute length. In order that matters of computation very nearly related may be considered together, we give in the following article some independent evidence on the length of the old league, which is the mention of the mile. We shall finish this article by stating our conviction that the length of the league or leuca was, in the time of the old law writers, very near, one half of a modern mile; and a half mile, or two modern land miles, two of a mile; the old mile being to the modern statute mile in the proportion of 45 to 100.
March, 1705. In the same year he bore an active part in the reduction of Barcelona, which again he relieved in April, 1706, when besieged by the Spaniards and French, and in great extremity. In the same year he commanded the fleet at the capturing of Alicante, Cartagena, and the island of Majorca, and in 1708 of St. Martin and Minorca. After the death of Sir Clauudey Shovel in 1707, Sir John Leake was made commander-in-chief of the fleet, and in 1709 Rear-Admiral of Great Britain, on which occasion the queen paid him the high compliment that "she was put in mind of a great himself of the name". And the son became a lord of the Admiralty, and continued high in office until the death of Queen Anne. Being superseded on a pension on the accession of George I. he spent the rest of his life in private life, leaving a high professional reputation for skill, courage, prudence, and success. His private character is represented in a very amiable light. (See the 'Life' by his London S. M. Leake, 1736, and a long article in the Edinburgh Dictionary. Svo.)

LEAMINGTON. [Warwickshire.]

LEAP YEAR, the name given to every fourth year of the Julian calendar, in which one additional day (a twenty-ninth day of February) is reckoned. This correction constitutes the distinction of the Julian calendar: the necessity for the Gregorian correction arises from the years being made a very little too long, one with another, by making them consist of 365½ days each, as is done when a day is here and there left out, leaving the earth one revolution short of a complete circuit in its orbit. The correction is made by omitting three leap years in four centuries, and it is settled that the common years, which would otherwise be leap years, shall be those which terminate centuries in which the number of days is 1, 2, 3, or 4, and the years 1800 and 1900 are not leap years, but 2000 is leap year: 2100, 2200, 2300 are not leap years, but 2400 is leap year.

LEASE, Demission, or Demission (from the French laisser, permission), is a demise or letting of lands or tenements, right of common, rent, or any hereditament, unto another for term of years or life, for a rent reserved. (Cowell's Law Dictionary. art. 'Lease.' But it should be observed that the term 'lease' is also given by some, either as a conveyance of a leasehold interest in part of the estate. The party letting is called the lessor, and the party to whom the property is let is called the lessee. A lease has also been defined to be a contract between a lessor and a lessee for the possession and profits of land or tenements on the one side, and a recompense by rent or other consideration on the other. (Bac, Ab, tit. 'Lease'.) The lessor who thus grants a term of years to a lessee out of some larger estate has a reversion to which the rent is chargeable. (Barn & Cross, 2d ed., 314.) The nature of the relation thus created, provided a fixed rent be reserved: also is due from the lessee to the lessor.

[Burl.] The lessor contracts to give the lessee the possession of the land, and agrees, on breaking the contract, to make him good his damages. The lessor may maintain an action of trespass against a person who enters even the subsoil of his premises; as for instance, if such trespasser enters by means of a level or passage from a mine in adjacent premises, and takes coal from under the lessee's land. (Lewis v. Braithwaite, 2 B. and Ad., 438.) The possession of the lessee comprises all that he is entitled to, which in case of land extends indefinitely below the surface [Land]; this possession may exist without any property or ownership, as in the case just stated.

A lease for years does not require a deed or livery of seisin, and at the common law no writing was necessary, although the words contracted to be given it and the effect; but now, by the Statutes of Frauds (29 Car. II., st. 1, c. 1), all leases, estates, interests of freehold or terms of years, created by livery and seisin only, or by parol, and of quit in writing and signed by the parties so making or entering into the agreement, and for a term of years, are intended to require a writing. The object of being written, shall have the force and effect of leases of estates at will only, except leases not exceeding the term of three years from the making thereof, upon which the party enter to the land, and during such term shall amount two-thirds at the least of the full improved value of the thing demised. If the tenement be incorporeal or a remainder, a deed is necessary, and other leases are commonly made by deed, as covenants can be made by

P. C. No. 532. case there cited.) In leases for life livery of seisin or some substitute for it is necessary.

When there is a parol agreement for a lease, which would be void by the statute, but the tenant has entered in consequence of such agreement, and done other acts in part performance of it, courts of equity will decree that the landlord shall execute a lease, according to the terms of such agreement, if it can be satisfactorily proved by evidence.

It has been laid down that whatever words are sufficient to explain the intention of the parties, 'that the one shall give to the other' shall be held sufficient, whether they are in the form of a licence, covenant, or agreement, are of themselves sufficient, and will, in construction of law, be held as sufficient for a lease for years, as effectually as if the most proper and pertinent words had been used for that purpose: and, on the contrary, if the most proper and authentic form of words whereby to describe and pass a present lease for years are made use of, yet if upon the whole deed there appears no such intent, but that they are only preparatory and relative to a future lease to be made, the law will rather do violence to the words than break through the intent of the parties; for a lease for years being no other than a contract for the possession and profits of land on the one side, and a recompense by rent or other income on the other, if the words made use of are sufficient to prove such a contract, in what form soever they are introduced, or however variously applicable, the law will hold them to be such.'

For the reasons stated in the passages just quoted, it is frequently found difficult to decide whether an informal written instrument shall have the operation of a lease, or shall be considered only as an agreement for a future lease. Much of the litigation on the subject, especially in cases out of this difficulty. 'When a person agrees to let premises for a term, it is not unusual for the intended assignee to be let into possession on executing an agreement for a year or two, in case he is not able to expressly say that the lease can be executed, or with a view of avoiding the expenses of a lease altogether. But such a course is strongly to be deprecated, on account of the various questions which have arisen in regard to the ascertained time and execution of such agreements, and the unsatisfactory state in which it places the rights and remedies of the respective parties. The tenant has no security for his possession, since, he is liable to eviction in an action at law (Hamerton v. Stead, 3 D. N. and R. 208), nor has the landlord any summary means of enforcing payment of his rent; for it is considered that, under such an agreement, no distress can be levied, the landlord's only remedy for his rent being an action for use and occupation (Hogan v. Jackson, 2 Taunt., 148; 4 Taunt., 576; Roff v. Abol, 372.) (Bac, Ab, 4 Cress, 480;) unless indeed rent has actually been paid under the agreement; in which case, as the payment of rent creates an actual tenancy from year to year between the parties, the landlord may distrain. (Brythwood's Conveyancing, by Jarman, 351.)

The editor then enters into an examination of the two classes of cases, namely, those in which instruments of the nature of agreements for leases have been held to amount to actual leases, and in which they have been decided to be agreements only. All that can be done here is to state briefly the general conclusion at which he arrives from this examination.

A comparison of the cases, 'of these two classes of cases will serve to show the impossibility of reconciling all the decisions upon the subject. The sound and sensible decision seems to be, that where the paper is executory in its terms, and contains no words of present assignee, particular or general, and no terms are expressed, it is to be construed as an agreement only; and to this rule the later judges have certainly inclined. Much of the discrepancy in the determinations is produced by the cases of Poole v. Holmley and Dow v. Greens, in which it was held, that Lord Ellenborough, and the rest of the Court of King's Bench held that an instrument by which one party agreed to let, and the other to take, premises on certain

* Besides other differences between the two in regard to expense, there is a difference between the stamp duties chargeable on leases and agreements.

* CL XIII.—3 C
The following is part of the doctrine of Sir James Mansfield above referred to:—It would be a very wise rule, that whenever one person is about to grant and another to take a lease, until the lease was actually executed, no interest at law should pass. As to the question, What are usual covenants? it is an endless source of litigation. Some have known long hands up at an inquiry before a master of chantrey. What are the usual covenants? and it is the execution of those, or at least the instrument under such an agreement till a lease is executed; but the convenience of parties sometimes requires it.' (Morgan & Doding v. Bissell, 3 Taunt., 65.)

For a lease to contain a sufficient degree of certainty as to its beginning, continuance, and ending. But it may be made to determine, before the time fixed, by a proviso or condition. In modern leases there is a proviso, that if the rent is not paid within a certain time, and no sufficient distress is found on the premises, the lessor may re-enter. Where the lease is made to begin from an impossible date, as the 30th of February, it will take effect from its delivery. A lease for years may be made to commence at a future time. A lease is made by common law, of land, in possession, the lessor's interest is not completed till he takes possession, for having taken possession he cannot avail himself of all the rights and privileges of a lessee.

But before he takes possession he has an interest, technically called an interesse terminis, which he may release, assign, or bequeath; but this interest is not capable of enlargement by release. If it is a lease of the reversion, and the lease is made by deed, such lease gives a vested interest and passes a portion of that reversion to the lessor, but the equitable title as against the persons who thus stands in the relation of landlord to a prior lessee; but a reversionary lease, or a grant of a lease, to commence on a future day, or on some given event, is only an interest terminis.

When a lease is made by deed, there are certain covenants implied between the parties in the words usually employed. Thus the words 'grant or demise' imply a covenant by the lessor that he has a right to create the term, and that the lessee shall have quiet enjoyment of the property demised. And the words 'yielding and paying,' in the usual reservation of rent, imply a covenant on the part of the lessee that he will pay the rent in the manner mentioned in the reservation. But the implied covenants are restrained by the express covenants that are commonly inserted in formal leases, and which vary in their character according to the intention of the parties and the nature of the property demised.

It has been assumed that an estoppel applies to leases for years. If a person execute a lease of lands, for any term by indenture, in which he has no estate whatever, the want of which estate does not appear upon the instrument, the lease will operate as a private interest which he never acquired to the same extent as one who stands in the relation of landlord to the lessee, who thus stands in the relation of landlord to a prior lessee; but a reversionary lease, or a grant of a lease, to commence on a future day, or on some event of interest.

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The assurance by which the whole term created by a lease is transferred to another is called an assignment, and by this transfer the assignee becomes liable, until he assigns to some one else, to all those covenants in the lease which are said to be good with the land, that is to say, those covenants which are not personal and extrinsic to the lease.
the revocation, reciting the lease, to divers uses, it was a good conveyance of the revocation. (Luttrell v. Mitton, Cro. Ja., 904.) And in a subsequent case, where there was a leasing and sale for years, for if that all provability
question as to the mode of its operation may be excluded:
but the lease has commonly a multitude of words, such as:
"grant, bargain, sell, alien, release, and confirm;" the varia-
tions in law, and practice, will make it appear that a part
more a matter of taste than of importance; and where the	consideration is not pecuniary, the idle words "bargain and
tell" are countenanced by the insertion of a nominal con-
"sideration, as of ten shillings, acknowledged to be paid."
(Burton on Real Property, 341, 422.)

When the conveyance by lease and release became a common	assurance, only a nominal consideration was men-
tioned in the bargain and sale; and it was held that even a	reservation of a peppercorn rent was a sufficient con-
tingent interest sufficient to give a use by a bargain and sale on which it was
found a lease.
The recital of a lease for a year, in a deed of release, is
good evidence of such lease against the releaser and all	clayeees, but not against the vendor, without
proving that there was such a deed, and that it was lost or
destroyed. Not only estates in possession, but estates in
remainder and reversion may be conveyed by lease and release.
Estates in remainder and reversion expectant on estate for
lives may be conveyed by lease and release; but in cases of	this kind it is inaccurate to say that the release is	in the actual possession of the premises; the proper ex-
pression being, that they are actually vested in him by	virtue of the lease, by the power of the Statute of Uses.

Incorporal hereditaments, such as advowsons, tithes, rents, &c., may be conveyed by lease and release, for they are expressly named in the Statute of Uses, or	compared under the general word hereditaments.

Lease and Release is one of those which are technically
called the innocent conveyances, in contradistinction to those	which are termed tortios.
Thus,
"the original meaning of the word lease does not divest any
tenant, or create a discontinuance or forfeiture. Thus Little-
ton says,—"By force of a release nothing shall pass but the
right which he may lawfully and rightfully release, without
hurt or damage to other persons, nor the right of his
heirs, or the heir of his heirs to release after his death in a
subsequent section he says,—"If tenant-in-tail lets the land to another for a term of
years, by force whereof the lessee hath possession, and the
tenant-in-tail release all his right in the same land, to hold to
the lessee and his heirs for ever, this is no discontinu-
ance; but after the decease of the tenant-in-tail, his issue
may enter; for by such release nothing passed but for time of
the life of the tenant-in-tail. This conveyance will not,
for the same reason, destroy a contingent remainder: therefor
fore if a person is tenant for life, with a contingent remain-
der depending on his estate, and he conveys in fee by lease and release, the contingent remainder will not be destroyed."

(4 Cr. Dig., 116.)
The modes in which property in land can be asserted afterwars proved by Laplace. It will be worth
while to quote the passage, as follows:—Mihii vix quidum
ullius desideras superius postquam ostensum fueri quid
rubis haberi possit, ubi diversae observationes, in eundem a
salutatur, paululum diversas ab invicem conclusiones exhibit.
Aut autem ad modum sequentis exempli. Sit p, locus ob-
susius ex observatione prima definitis, q, r, s, ejus-
num observationes, observatione infantis, per insuper P, Q, R, S, pondera reciprocis proportionalis spatii
evagationum, per quos se diffunde possint. Errors ex
observationibus singularis prodeunt, quaque dantur ex
erroribus qui in se a, p, q, r, s, intelligant
ponderur P, Q, R, S, et inventur ad praevia gravitationis centrum
Z: dioque punctum Z for locum objecti maximae
probabilis qui pro vero ejus locum totiussem habere potest."

Legende, in his work on comets (1806), first distinctly
proposed the application of the above reasoning. Gauss	awards stated that he had been in the habit of using it since 1795. Finally, Laplace, in his 'Theory of	Probabilities' (1814), and we believe in a previous paper published in the 'Memoirs of the Royal Society,' showed that this method was in all cases the one which the principles of that theory pointed out as giving the result, which, from the observations, has the greatest weight of probability in its favour. The details and demonstration of this method may be found in the volume of the ' Berne Astronomisches Jahrbuch,' for 1834 and the
two following years, and in the treatise on Probabilities in the 'Encyclopaedia Metropolitana.'
The most simple form of this method has been in use as long as accurate observations have been made, under the name of taking an average or a mean. If three observations give 93, 94, and 98, then the mean of the three is 95, and if this be assumed as true, it is also assumed that the errors of the observations were 2, 1, and 3. The sum of the squares of these is 4 + 1 + 9, or 14, and this is the least possible sum which can be thus obtained. If for example, we assume anything but 95, say 95 1, the assumed errors are then 2, 1, and 3, of which the squares are 4, 1, 9, and 8, the sum of which is 14 + 03, more than 14.
But the more extended cases of the method of least squares are those in which the result is not simply observed, but is to be determined by operations upon the result of the obser-
vation. In all cases the rule is the same; namely, that result has the greatest probability in its favour, the assump-
tion of which makes the sum of the squares of the errors the least possible, provided that all the observations are equally worthy of confidence. Without entering into fur-
ther explanation, we shall give the results of one case.

Suppose that A and a are to be determined by observation, the required result being A + a or the solution of the equation a + a = A,
and in this case the method which we now give, that all the observations, both of A and a, are made under equally favourable circumstances. Say that four observations are made of each; those for A being p, q, r, and s; those for A being P, Q, R, and S. If then all the observations were perfectly correct, each of the equations p - x = P, q - x = Q,
r - x = R, s - x = S, would be identical with a + x = A. Sup-
posing however that the observations are discordant, take
that value of x we may in several quantities, P + x = P,
Q + x = Q, R - x = R, s - x = S, will not be (as they should)
each equal to nothing. Whatever their value may be, the
whole of each value will be error: and the sum of the squares of the errors or
P^2 + Q^2 + R^2 + S^2
must be made the least possible. The value of x which satisfies this condition is

x = P + Q + R + S

which is the most probable value.
The method of least squares is now universally used in
astronomy, in which perhaps no science in which so
delicate a test is absolutely necessary.
LEATHER (cuir, French; leder, German; leer, Dutch; leder, Danish; läder, Swedish; cuoio, Italian; cuero, Spanish; азхa, Russian). This subject has usually occupied the civilized world, is pre-
pared from the skins of animals, or it would perhaps be more correct to say, consists of that substance after it has been chemically changed by the process of tanning. This

3 0 2
change is effected by means of a substance residing in several vegetable matters, to which the name of damnin has been given. When this damnin, which is solvable in water, is applied to the hides of animals from which the hair, epidermis, and any fleshly or fatty parts adhering to them are removed, the hides take on the appearance of gelatine, and are also solvable in water; these two solvable substances so unite chemically as to form the wholly insoluble substance called leather. [TANNING]

The leather manufacture is of great importance in this country, in its employment in all its various branches to a very great number of persons. It has been computed that taking into the account tanners, curriers, and dressers, shoemakers, glove-makers, harness-makers, saddlers, and other branches of the leather manufacture, there can be few under 250,000 persons supported by this branch of industry. We have not at present any means for ascertaining the quantity of leather made in the United Kingdom. The yearly average production in the three years ending with 1822 was 48,144,026 pounds; the average production in the next three years was 63,051,096 pounds, being an increase of 30 per cent. This increase is in great part attributable to the reduction of the duty from 3d. to 1½d. per pound, which took place in 1822. In 1829 the duty was wholly repealed, and we have since forward no means for ascertaining the quantity produced yearly. It is reasonable to suppose that the repeal of the duty, joined to the increase of the since caused, has given an increase in this branch of manufacture as follow the abolition of the duty in 1822. In this case the annual production at this time will be 82,000,000 pounds, and the value, taking one quality with another, at the moderate price of 13. 4d. per pound, $25,000,000. It has been assumed that the value of the leather forms only one-third of the cost of the articles made with that material, at which calculation the ultimate value of the manufacture in this country must not exceed 80,000,000. Some persons have calculated that the value of the leather—the raw material—forms only one-fourth part of the aggregate value of leather goods, and the manufacture must, according to their calculation, exceed 40,000,000 pounds. Not that this amount appear excessive if we consider that there is only a very small proportion of the people, however poor they may be, who do not wear leather shoes or boots; that the use of leather gloves is general amongst all but the labouring class, and that the harness of horses used for pleasure, as well as those used for agricultural and other business operations, is made with this material, besides an endless variety of things in daily use, which will suggest themselves to every one's mind. The leather manufacture is one of the principal in this kingdom, and of the articles made with it, is used at home. The quantity and declared value of leather, wrought and unwrought, and the declared value of saddles and harness exported (almost wholly to our colonies and dependencies), in each of the ten years from 1828 to 1837, were as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Leather wrought and raw wrought</th>
<th>Saddles and Harnesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1828</td>
<td>1,321,542</td>
<td>273,976</td>
</tr>
<tr>
<td>1829</td>
<td>1,338,987</td>
<td>258,380</td>
</tr>
<tr>
<td>1830</td>
<td>1,405,003</td>
<td>240,750</td>
</tr>
<tr>
<td>1831</td>
<td>1,314,931</td>
<td>243,940</td>
</tr>
<tr>
<td>1832</td>
<td>1,407,729</td>
<td>236,300</td>
</tr>
<tr>
<td>1833</td>
<td>1,502,579</td>
<td>254,390</td>
</tr>
<tr>
<td>1834</td>
<td>1,617,421</td>
<td>248,302</td>
</tr>
<tr>
<td>1835</td>
<td>2,014,811</td>
<td>295,934</td>
</tr>
<tr>
<td>1836</td>
<td>2,042,471</td>
<td>325,546</td>
</tr>
<tr>
<td>1837</td>
<td>1,647,000</td>
<td>255,818</td>
</tr>
</tbody>
</table>

The duty on leather, which was necessarily charged upon the weight produced, was impolitic, because of the regulations enforced by the revenue-officers for the prevention of fraud, which but also prevented the introduction of improved methods of manufacture; and it was likewise unequal in its operation, falling most heavily upon those who were least able to bear it. The shoes of the labouring man were necessarily made thicker and heavier, and therefore paid a greater amount of duty than shoes of the light class, on which ground alone it was important to repeal it, but there is every reason for believing that the improvement in the quality of leather brought about since that repeal is of far greater benefit to the country than the small amount of the duty.

The revenue derived from this manufacture in the ten years preceding the repeal of the duty was—

<table>
<thead>
<tr>
<th>Year</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1828</td>
<td>£688,158</td>
</tr>
<tr>
<td>1829</td>
<td>602,292</td>
</tr>
<tr>
<td>1830</td>
<td>546,503*</td>
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<tr>
<td>1831</td>
<td>393,516</td>
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<td>1832</td>
<td>393,507</td>
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<td>1833</td>
<td>414,863</td>
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<tr>
<td>1834</td>
<td>434,481</td>
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<tr>
<td>1835</td>
<td>360,307</td>
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* Duty reduced from 2d. to 1½d. per lb. from 1st of July in this year

LEBADÉA, LIVADIA. [BOGOTA]
LEBANON. [SYRIA]
LE BLANC. [BLANC, L.]
LEBRUN (or LE BRUN), CHARLES, an eminent French painter, was born at Paris in 1619. His father was an indifferent sculptor. The son, manifesting an early talent for drawing, was placed under the care of Simon Vouet. He however went to finish his studies at Rome, where he spent six years, during which time he diligently applied himself, under the guidance of Poussin, to acquire a thorough knowledge of the antique, and of the works of Raphael and other great masters. Lebrun had a very comprehensive genius, improved by profound study of history and of the manners of different nations. Few painters were better acquainted with the human mind and the influence of the passions on the countenance, as is shown in his ' traité sur la physionomie,' and 'sur le caractere des passions.' In invention he had few superiors. With a lively imagination he combined great facility of execution and sound judgment, and aimed at the greatest correctness, especially in the costumes and details. His colouring, particularly in the flesh, is indifferent, retaining too much of the school of Vouet; his legs are often too weighty, and his figures poorly distributed, and his foregrounds are generally deficient in force. His great merit obtained him the favor of Louis XIV., who appointed him his principal painter, president of the board of artists in 1666, and superintendent of the rector of the Gobelin manufactory, conferred on him the order of St. Michael, and frequently visited his studio while he was engaged on the battles of Alexander, the best known and most admired of all his works, even the engravings from which give a high idea of his great abilities, and of the elevated style of his composition and design. Lebrun died at Paris in 1690, at the age of seventy-one.

LECE, a town in the kingdom of Naples, in the province of Benevento, 42 miles south-east of that city. It was given in a gift to Otranto, in the year 1034. It has an area of 18,262,542 acres, and a population of 12,389. It is situated in a large basin, 2½ miles wide, of which the Messapian peninsula in its entire length. A good road, 25 miles north, leads from Lece across the peninsula to Gallipoli on the southern coast, and another, lately finished, leads to Taranto, in which Lece lies 45 miles east. It is about 20 miles south-east of Brindisi, and nearly the same distance north-west of Otranto.

LEGUERE. [GREN]
LECITHIDACEAE, an important but small natural order of plants with singular fruits, and very large fleshy flowers, inhabiting the woods of South America. They are regarded by De Candolle as a section of Myrtaceae, from which they appear to have been derived, and to which they are related in many respects. The stamens are occasionally many, but the ovary is always a large seed box.

1. Lecithis ollaria, a tree inhabiting the forests of Cumania and Brazil, with a hard woody fruit as large as a man's head, and opening by a lid like that of a jar or urn. It contains 15 or 20 large seeds.

2. Lecithis Zapuco, a large Guiana tree, with alternate oval leaves twelve inches long, and racemes of large fleshy red and white flowers. The fruit is hard, woody, urn-shaped, and about four inches broad by six inches high; at

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* Duty reduced from 2d. to 1½d. per lb. from 1st of July in this year.
contains numerous seeds as large as almonds, and quite as agreeable when fresh. They are sometimes seen in the fruiters’ shops in London, where they are called *Sapucaya nuts*.

3. *Bertholletia excelsa*, already described. *[Bertholletia]*, this plant takes its name from its large heavy woolly fruit, which, according to Aublet, is about the size of a 36-pound shot, and although urn-shaped like the others, does not open by its lid, but is broken by its fall, or lies on the ground till it rots, before the seeds can extricate themselves. The flowers are very large and handsome, deep rose colour and white; the tree is of great size, with a trunk often more than two feet in diameter.

4. *Conocarpus guianensis*, or Cannon-ball tree. This plant takes its name from its large heavy woolly fruit, which, according to Aublet, is about the size of a 36-pound shot, and although urn-shaped like the others, does not open by its lid, but is broken by its fall, or lies on the ground till it rots, before the seeds can extricate themselves. The flowers are very large and handsome, deep rose colour and white; the tree is of great size, with a trunk often more than two feet in diameter.

**LEDYARD, JOHN**, a remarkable person in the history of geographical discovery, was born at Groton in Connectic-at, and educated at Dartmouth College, New Hampshire.

Having lost his father, and being apparently friendless, he had not the means, if he had the wish, to follow up his studies. Some years he spent among the Indians, a good school of preparation for his future toils. He worked his passage from New York to London in 1771 as a common sailor; and in 1776 sailed with Capt. Cook, on his third voyage, in quality of corporal of marines. While thus engaged he conceived the bold scheme of traversing the unknown regions of America, from the neighbourhood of Nootka Sound to the eastern coast; and so earnest was he, that being frustrated in his design of reaching the western shore of America by sea, he set out from England towards the end of 1786, with ten guineas in his pocket, hoping to reach Kantiwhats, and thence effect a passage to America. According to Tucker’s *Life of Jefferson,* this scheme was suggested to Ledyard by Mr. Jefferson, then the American minister at Paris, who assisted him with money. He traversed Denmark and Sweden, passed round the head of the Gulf of Bothnia, after an unsuccessful attempt to cross it on the ice, and reached St. Petersburg in March, 1787, without money, shoes, or stockings, having gone this immense distance on foot in an Arctic winter. At St. Petersburg he obtained notice, money to the amount of twenty guineas, and permission to accompany a convoy of stores to Yakutsk in Siberia. But for some unexplained reason he was arrested there in January, 1788, by the order of the Empress Catherine, while waiting for the spring, and conveyed to the frontier of Poland, with a hint that he would be hanged if he re-entered Russia. He found his way back to England, after suffering great hardship. Still his adventurous spirit was unbroken; and, almost without resting, he eagerly closed with the proposal of the Association for promoting the discovery of the inland parts of Africa, to undertake a journey into that region. There is a characteristic story, that on being asked how soon he could be ready to set out, he replied, ‘To-morrow morning.’ He left London, June 30, 1788; and travelling by Marseille and Alexandria, reached Cairo, Aug. 19. The ardent, persevering, intelligent spirit of inquiry shown in his first and only despatches raised high expectation of the value of his labours; but these were cut short by his premature death, in that city, of a bilious disorder. His route was to have been from Sennam to Kordof, in the supposed direction of the Niger, so that he would have crossed that great continent in its widest part, traversing Bornou and the region lately explored by Denham and Clapperton, at right angles to their track from the Mediterranean. From his scanty education and modes of travelling, Ledyard, nevertheless, though he have contributed little to scientific knowledge; but his vigour and endurance, mental and bodily, and indifference
to pain, hardship, and fatigue, fitted him admirably for a geographical pioneer; and his death, the first of many lives sacrificed to African discovery, excited a strong feeling of regret.

'I have known,' he said, shortly before leaving England for the last time, 'hunger and nakedness to the utmost, and the most human sufferings. I have known what it is to have food given as charity to a madman; and I have at times been obliged to shelter myself under the miseries of that character, to avoid a heavier calamity. My distresses have been treated with sympathy, or even worse, or to any man. Such evils are terrible to bear, but they never yet had power to turn me from my purpose.'

LEE, NATHANIEL, was born in the latter part of the 17th century. He was educated at Westminster school and at Trinity College, Cambridge. A passion for the theatre led him to appear as an actor on the London stage, but he met with no success. He wrote how eighteen tragedies, of which two, 'Alexander the Great,' and 'Theodosius,' remained favourites for a long time, though the first alone is now remembered. A derangement of mind led to Lee's temporary confinement in Bedlam, and though he was released, he did not long enjoy his liberty. He died at the age of thirty-four, having, as Cibber supposed, been killed in a night rambles.

Lee has been treated with too much leniency by contemporary critics, who have admitted the bombast that pervades his works, but ascribe it to a wild and powerful imagination. No doubt these critics have taken his inflated words and thoughts for the fruits of imagination, when they are merely common-places dressed up in extravagant language. Shelley may be called a poet of wild imagination, because he is carried on by an irresistible impulse to create. The more rapid, that is, the more often lost. On the other hand, a poet of regulated imagination is one who, also with a creative power, has his creations at his own command, and uses them to illustrate his main subject. But extreme exaggeration may arise without much imagination; it requires no more imagination to describe a pillar 2000 than two feet above its proper height, or a multiplication table would be the imagination's highest creation.

On these principles, it will be found that it is this sort of arithmetical exaggeration that is so freely used; thus, a character in sorrow will command 'all the world' to weep, and so on. The author has thus brought together a number of impossible characters, uttering no single word of true feeling, nor a phrase in good taste; and a discriminating reader will not only feel no interest, but find it difficult to repress a smile at the woes of the gaudy heroes and heroines. Much less would have been ascribed by the strength of his imagination, had the connection between the words 'imagination' and 'image' been kept in mind; a connection which, in the German language, is preserved between 'bild' and 'einstrudungskraft.'

Lecches (Zoology). Hirudinidae, a family of annelid worms, of which the Hirudo, or leech, forms the fourth order of the Annelida in the work of MM. Andouin and Milne Edwards, the most recent publication on the classification of these animals. This order, called Annelida succoria (Annellida), is characterized by the body of the animals being destitute of bristles for locomotion, completely smooth, without soft appendages, and furnished with a pharyngeal cavity in the form of a sucker at each extremity. The head is not distinct, but generally provided with eyes and jaws. Cuvier, in the 'Règne Animal,' places these leeches in the third order of the Annelida, the 'Abrasche,' and in the second family, the 'Abrasches sans soies.' The classification of MM. Andouin and Milne Edwards does not differ from that of Cuvier, or from that of the 'Système des Annelides,' by Savigny, published in the great work on Egypt.

The family of the Hirudinidae comprehends not only the leeches properly so called, which live by sucking the blood of various animals, but also includes many other worms which derive their nourishment in a totally different way, and present corresponding differences in organization. The affinities between the hirudines and some of the scutellifer annelides, as various species of nemus, limulida, planaria, &c., are so close that they hardly admit of being arranged in separate orders, and others of the leech tribe may even be confounded with some species of nemus or planaria.

The antients appear to have only known the most common species of leech: Aristotle makes no mention of them, and they do not appear to have been used in medicine in the time of Hippocrates. Pliny describes them very clearly under the name of Hirudines and Sanguisuges, and distinguishes two species. The sea-leech is distinctly mentioned by Columella, Cato the Elder, and the writers of the time of the revival of letters. More recently Linnaeus increased our knowledge of the number of species, of which he describes eight in the 12th edition of the 'Systema Naturae.' Müller afterwards discovered five or six others, so that at present we know at least fourteen species, enumerated fourteen species. Since then, Shawn, Leach, Dutrochet, Savigny, Milne Edwards, &c., have found many more, and the introduction of new zoological methods has caused a necessity for arranging these various species in different genera, of which the following is a list of the best known.

The true leeches are all destitute of branchia or special organs of respiration, and this function has been supplied to be effected by means of the alveoli, generally, but Dr. M. Edwards has recently stated (as was before observed by Cuvier) that 'there exists in these annulida a series of small membranous sacs, each of which communicates externally by a minute orifice situated on the ventral aspect of the body; these sacs derive from the numerous vessels which ramify upon their parieta a considerable quantity of blood; water penetrates into these organs, and seems to subserve a true respiratory purpose. But though the species of annulida are sufficiently provided with branchiæ, these organs are found in a genus which is generally associated with the true leeches, and which we will place first in the following list of genera:—

1. Branchellion (Savigny), Branchiobellula (de Blainville), Polydon, &c., of which the leech is a species given to a closely resembling a leech in external structure (it being furnished with two suckers), which is found parasitic on the Toad and in the Mediterranean and other seas. The Hirudo branchiata (Menzies), a species observed in the British Pacific Ocean, has also been placed in this genus, though Cuvier says that it ought not to be associated with it.

Hirudinidae proper.

Section I.—Anterior sucker separated from the body by a distinct strangulation or neck.

2. Albiene (Sav.), Pontobellula (Leach and Blain.), characterized by the body being bristled over with tubercles: species all marine; seven have been enumerated; two of them are very common in our seas:—1. Albinone verrucosa, Hirudo muricata (Linnaeus); 2. Pontobellida spinulosa (Leach): both of these worms attach themselves to fish, particularly skates; and the latter species is commonly known to fishermen by the name of the skaters' leech.

3. Hemochorius (Sav.), Ichthyobellula (Blain.). In this genus there are eight eyes, the body is narrow, and the jaws scarcely visible. The only known species is the Hem. piscium, Hirudo piscium (Lin.), which lives in fresh waters; when it attaches itself to fish, particularly Cyprinidae.

Section II.—Anterior sucker very slightly separated from the body by a membranous sac.

4. Geobellula (Blain.), Trocheta (Dutrochet), is distinguished by having an enlargement round the orifices of the genital organs. We only know one small species of this genus, the Geobellula trochetii, which inhabits our waters, and which frequently comes on land to pursue the luminous or earth-worms.

5. Pseudobellula (Blain.) has the mouth merely provided with folds of skin, and is destitute of teeth. Only one species is well known, the Pseudobellula nigra, Hirudo nigra (Lin.), the common black leech.

6. Hemopsis (Sav.), Hypobellula (Blain.), has the mouth furnished with a few obtuse teeth. Three species are enumerated; the best known is the Hemopsis sanguisigna (Sav.), the common horse-leech, which is much larger than the black leech, and is characterized by a greenish-black colour. The horse-leech has been reported to inflict dangerous wounds by some observers, while others state that it never attacks vertebrate animals. M. Dr. Blainville thinks that the horse-leech is derived from this species having been confused with the foregoing, the black leech, which cannot penetrate the skin of vertebrates for want of teeth. Both these leeches are generally regarded as the common earth-worm.

7. Sanguisigna (Sav.), Jactobellula (Blain.). The anterior
L E E 383 L E E

Leech has its upper lip divided into several segments. Its speeial alimentary canals, of which two it armed on its edge with two rows of very little teeth, which enable these leeches to penetrate through the skin without making any dangerous wound. This genus contains the true medicinal leeches, eight species of which have been enumerated, the Sanguisuga medinensis, Hirudo medicinalis (Linn.), which is a native of all our stagnant fresh waters.

8. Bdeula (Sav.) has eight eyes and is destitute of teeth: one species is found in the Nile—the Bdeola nilotica.

9. Mibodella (Joh.) has eight eyes, and the mouth is furnished internally with only three folds of skin. Several species of this genus are enumerated; the most common is the Nepheles tessilata (Sav.), Hirudo vulgaris, which is found in the medical and other leeches; it is commonly found in fresh waters, and, like all the other species of this genus, never leaves the water, and is injured by the contact of the air; so that if taken out of the water it quickly dies.

Section III.—Anterior sucker wanting.

10. Clepsina (Sav.), Glossopora (Johnson), Glossobdella (Blain.) This genus has a widened body and only a posterior sucker; the mouth is in the form of a proboscis.

Curvi-branchiata consist of the leeches with curved extremities, and it seems likely that these should be arranged with the leech family; they consist of little worms which never leave the water, and live fixed to the stem of aquatic plants, from which they perhaps derive their nourishment: they never swim, but crawl along.

The species described in the preceding article it is intended to treat here only of those of the genus Sanguisuga (Savigny), as they only can be employed for medical purposes. The same reason induces us to confine our attention to the species S. officinalis (Savigny) and S. medicinalis (Savigny).

Though the S. obscura and S. interrupta might be employed to withdraw blood, yet the S. officinalis and S. medicinalis are chiefly so used. The former is also termed the Hungarian or green leech (Hirudo provincialis of Carra); S. meridionalis of Risso, while the latter is termed the German or brown, or grey leech, also the true English or speckled leech.

The one species abounds in the south of Europe, while the other is a native of the north. The S. meridionalis possesses the coccicidal glands, and is the cause of so many of the pangs and bogs in which it formerly abounded. The same is nearly the case in France, which used to be supplied chiefly from the district of La Brenne, but now from the former of Russia and Turkey. England derives the immense number reserved mostly from Sweden, Poland, and Hungary.

The genus Sanguisuga is characterized by having the body elongated, the back convex, the belly flat, and the oral and caudal extremities narrowed, before they spread out into disks or suckers. The body consists of from ninety to one hundred or more soft rings, which do not increase in number, but only in size, with the age of the animal, which requires about one year for the growth of an inch, being devoted by others which prey upon it, it may attain twenty years. The anterior or oral extremity is rather narrower than the caudal: it is provided with ten blackish points or eyes, and a triradiate (not triangular) mouth, furnished with three teeth: it is further provided with numerous cutting-teeth. The anus is very small, situated on the dorsal surface of the last ring.

The S. officinalis has a green body or light blackish-green, the back marked with six longitudinal bands of an iron colour, bordered with black and grey, and the edge. The belly is of a yellowish green without spots, but broadly bordered with black. The segments of the body are very smooth. It is large, often seven inches long. It lives in the medicinal offices of physicians.

S. medicinalis has the body of a deep green, its back marked with six longitudinal bands of an iron colour, pretty clear, spotted with black points, generally triangular. The belly is greenish, spotted, and broadly bordered with black, and the segments of the body rough from granular eminences. It inhabits stagnant and slow waters.

Of the anatomy of the leech it is not necessary to say much. The skin consists of two layers, the external or epidermis, and the internal or corium. The first is transparanent and albuminous, and enabled to be torn off from the body every four or five days. The corium consists of condensed cellular tissue. It displays the divisions into rings, and in it resides the colouring matter of the leech.

The alimentary system consists of the mouth, the stomach, the intestine, and the rectum. The mouth is broad, flat, and triangular, furnished with a large, thin, three-pronged proboscis, formed of three equidistant lines, meeting in a centre, about the middle of the oral disk. Inside are three sublenticular jaws or piersers, white, and of a cartilaginous nature; the first two being sharp, margin of each jaw there are about eighty small fine-pointed teeth. The alimentary canal consists of an osphagus, a long stomach, with caecal sacs, and an intestine. The osphagus is a muscular tube, and commences between the inner angle of the three jaws by a roundish opening: it dilates as it approaches the stomach, but at its termination it contracts into a circular aperture: the whole length does not exceed a quarter of an inch. The stomach occupies two-tw thirds of the thickness of the leech; it is divided into compartments or cells. Each of these divisions, i.e. from the second to the eleventh, gives off on each side a sac, of which those of the last cell are much the largest. The intestine is about an inch in length; at the upper orifice is a valve, and at its lower a sphincter. Each of these contains nearly half an ounce of blood; so that there is nothing remarkable in the statement that leeches have been known to exist three years in water, without any other nourishment than they could derive from their own blood, being reduced into cells quite distinct, in the first eight of which it remains for months, without undergoing any change either in colour or fluidity: over these cells the animal has a perfect control, merely allowing so much nutriment to pass into the alimentary canal as is necessary to preserve its existence. This accounts for the reluctance of the animal, after being used to abstract blood, to repeat the operation; it not only being gorged at the time, but provided with nutriment sufficient to serve it during almost a sixth portion of its life. In its native state the true medicinal leech does not seem to take any solid aliment, but subsists on the fluids of fish, frogs, &c.

Leeches are voracious. The ova remain in the uterus for some time, where they become invested first with a serous membrane, and then with a glutinous fluid, which remains attached to them after their expulsion, and serves as a protecting covering after they are deposited in the clay and holes of the sides of the ponds. The larva generally deposited the cocoon of thin muslin at the time of September, which would seem that these animals do not multiply in great abundance unless they have tasted blood, particularly that of cows. On this account the leech-dealers of Britain go to the ponds during the month of July. The cattle of the district are in general wretched-looking, and the leech-gatherers not much better.

About five years are required before the leech attains a state of maturity; while very young they are quite harmless for medical purposes. They are caught in various ways, by the hand, or by a person wading in the shallow waters during the spring of the year, when they adhere to his naked legs; but in summer, as they have retired to deeper waters, they are caught by fishers and reapers. Leeches are entangled. Baits are deposited, generally pieces of decayed animal matter or liver, to which the leeches resort, and are then caught; but this last method is thought to injure the health of the animal. It is sickly and on the journey, especially during warm weather. They are conveyed either in bags or small barrels with a canvas cover.

Leeches are subject to many diseases, several of which are epidemic, and spread in the troughs with great rapidity. They are at the first appearance of illness the most likely to be immediately separated from the healthy. Care should be at all times taken that different speeches of leeches be not associated in the same trough, for they prey upon each other. The Hæmopis vorax and also H. nigripes are great destroyers of leeches, though they cannot penetrate the skin of vertebrated animals.

A leech may be known to be in good health if it be active in the water and plump when taken out. In Prussia...
Leeches are divided into three classes, according to their weight: the first not exceeding thirty grains; the second weighing between thirty and sixty grains; the third from sixty to one hundred grains. Some of their species are not to be used, unless specially ordered. In each prescription the physician is required to state what description of leech he intends should be used. In the case of children such regulations are highly proper, as an excess of blood abstracted may sometimes produce serious and often fatal consequences. Leeches vary in the quantity they can abstract, from one drachm to half an ounce: from one to two drachms is the average. The quantity is often doubled by the expediency resorted to after the leech has been re-engaged, either during water, or wet clothes being applied, or in many cases cupping-glasses, but cataplasms of linseed-meal are most beneficial where they can be applied.

One great advantage of the common leech is its facility of being preserved, which renders it of great value in practice. It should be kept in a cool, dry place, and to prevent them from drying it is recommended to keep a few in a vessel containing a little liquid resembling a lunar solution, which is often recommended as a preventative of ichthyosis.

The method of keeping them. Though aquatic animals, it is not enough that they be supplied with water. They breathe by their entire surface, and are accustomed to change air every four or five days. Their bodies, being of such a character that like all animals and plants which inhabit the water, by a slimy or mucilaginous fluid, which not only enables them to glide through the water, but keeps an aerial stratum in close connexion with their bodies, they are present in a limited degree, this mucous secretion is highly serviceable to them; in excess it is destructive. It is impossible for them to diminish it when it has accumulated, or to denude themselves entirely of their old skin, in water, as the skin of every four or some resisting body to creep over or through in order to accomplish this object. Some leech-dealers keep clay at the bottom of the troughs, and though this is useful as a material in which the leeches can burrow when watered, yet they are not so beneficial (by which they are injured than by cold, if not intense; and it is their habit to retreat to the deeper waters of their native rivers or ponds in summer, it is inadequate to the end. The best method seems to be that recommended by Fee:

Into a marble or stone trough, layer of seven inches of a mixture of moss, turf, and charcoal of wood is to be put, and some small pebbles placed above it; at one extremity of the trough, and midway between the bottom and the top, place a vessel of warm water. Into this pour a sufficient quantity of warm water in which there is some softening, or of the water, or of brine, with clay, in which to deposit the cocoons. Dr. Noble of Versailles has succeeded in procuring young ones. It has also been ascertained in France that leeches which have been used, if restored to their natural haunts, propagate abundantly, and also become capable of being again applied after eight or twelve months' stay in these congenial quarters. The great extent to which the trade in leeches is carried on renders attention to this subject of paramount importance. Four only of the principal dealers in London import 7,200,000 annually, and in Paris 3,000,000 are used. Leeches have sometimes been swallowed; and in Syria of late years a small leech is sometimes drank with the waters of the river, and by authors, who mention no great suffering. Salt or vinegar is the best means of dislodging them.

Leeches have been observed to propagate when kept in small bodies of water, but in large reservoirs, having a border of turf and rubbish or earth, in which were sown seeds of ephedra; this is continued, in which was covered with clay, in which to deposit the cocoons, Dr. Noble of Versailles has succeeded in procuring young ones. It has also been ascertained in France that leeches which have been used, if restored to their natural haunts, propagate abundantly, and also become capable of being again applied after eight or twelve months' stay in these congenial quarters. The great extent to which the trade in leeches is carried on renders attention to this subject of paramount importance. Four only of the principal dealers in London import 7,200,000 annually, and in Paris 3,000,000 are used. Leeches have sometimes been swallowed; and in Syria of late years a small leech is sometimes drank with the waters of the river, and by authors, who mention no great suffering. Salt or vinegar is the best means of dislodging them.

Leeches have sometimes been swallowed; and in Syria of late years a small leech is sometimes drank with the waters of the river, and by authors, who mention no great suffering. Salt or vinegar is the best means of dislodging them.
station; for Roman remains have been found in various parts of the town. The great road from Tedecester (Calcariad) to Manchester (Mancunium) passed through this place. The River Aire is 43 feet wide at Leeds, the River Saxons, and the sea-kings, or Jätras, from Scandinavia and the Baltic. The North-men effected the subjugation of the district about the year 890; and it was again conquered by the Normans, to the Norman Conquest. The remains of a Danish fortification are to be seen near to the Hunslet Bridge, which remains, both Danish and Saxon, sufficiently attest the above circumstances.

The appellation Leeds (Leeus) is Saxon; derived either from the name of the place, the name of its former possessor. Nothing is known of the name in Saxon times, except that streets existed on the site of some of the present streets. It is mentioned in 'Domesday Book' (see p. 127, Hawes's translation), from which notice it appears rather to be Eves in 260 feet, and the span of the suspension.

Soon after the Conquest Leeds passed, together with other valuable northern possessions, into the hands of the De Lacies. (Bradford; Pontefract.) The castle of the Paganelles, who held the place under the De Lacies, was besieged by Stephen. After the Paganelles, the manor was held by several successive lords; it then reverted to the crown, and was afterwards purchased by a body of individuals, and has since passed into the hands of successive proprietors, but with little alteration of the usual manorial privileges. We learn from Leland that in his time Leeds was considerably less than Wakefield, and Lord Clarendon (in 1642) speaking of Leeds, Halifax, and Bradford, says there are 'three very large towns and rich towns depending wholly upon clothiers.' Perhaps, however, a more accurate limit can be named as the commencement of manufacture at Leeds, but we may judge from the efforts made about the commencement of the sixteenth century for the various accommodations required by an increasing population, that such efforts were immediately subsequent to the commencement of its manufacturing activity. In 1538 Leeds had to furnish its proportion of ship-money; the town also participated in the conflict between Charles and the Pope, and it suffered at the dissolution of the order, of the plague,—and in 1644-5 more than one-fifth of its population perished. At this time the place was almost deserted, the markets were removed to a distance from the town, and grass grew in the streets. The first charter was granted by Charles I; the second, by Charles II, was granted on the petition of the merchants, cloth-workers, and other inhabitants, to protect them from the great abuses, defects, and decays discovered and practised by fraudulent mercers, in the making, selling, and dyeing of woollen and other cloths. This charter also granted the usual municipal powers and privileges. The funds of the corporate body were never great. Of late years the town has continued to increase of late, and these goods are extensively consumed for the manufacture of the coarser sort of cloth, not requisite for a large commercial community, as well as the institutions and societies necessary for supplying the wants and advancing the interests of its labouring population. In 1868 W. Hutton, the antiquary, passed through the town, and after witnessing its internal elements of wealth, and its natural advantages, he remarks of it, 'Leeds is rising, and will continue to rise except checked by a just and necessary war. The river, having been made navigable, gives an easy access to the markets. The number of elegant buildings recently erected shows what they have been able to accomplish; but the enterprising spirit of the inhabitants will perform future wonders. Good fortune stamps the place her own.'

Inland and Inland Communication.—Leeds is situated on the slope and partly on the summit of a hill which rises from the north bank of the Aire, and from the top declines to the east, west, and north. The northern and southern parts are connected by a free-stone bridge, over which the railway is carried, and by a bridge erected over the river, the first in 1827, and the second in 1832, form a connection between the town and its most populous suburbs. They are of a novel and simple construction. Instead of the usual method of the railway bridge, the scarps span over the whole space between the two abutments. The suspending arch is 12 feet wide, spanning over the river Aire and the towing-path; there is besides a small land arch of stone on each side. The total length of one of these bridges is 68 yards; the other arch 112 feet; the width of the bridge is 36 feet. The dimensions of the other bridge are rather less. The Victoria Bridge, from Sandford Street to the canal dock, is the property of a company of proprietors, with a capital of 20,000/. The bridge is 60 feet span, and 45 feet road within the battlements: the first bridge was laid in May 1754; it was admirably situated for trade, being placed in the heart of the inland navigation of the county. It communicates with the eastern seas by means of the Aire and Calder Navigation. The water-power of Leeds will produce from 3,000 to 8,000 horse-power, and it is calculated that 30,000 horse-power may be developed, and can be produced without interfering with the present situation of the town. The river Aire is navigable about 10 miles below Leeds, and at its head in a canal, nearly 24 miles, to the Dock-yards at Leeds, and 3 miles to the River Wharfe. The Aire is a most important river, affording a navigation of about 40 miles below the town, and for about 10 miles above it, and for a considerable distance below, and above the town of Wakefield. The river is navigable for vessels of about 100 tons burden, with the exception of a short distance near Leeds. It is impossible to say how much it is now navigated for the transport of coal, and how much it may be used for other purposes. The Aire is a considerable shelter for vessels, particularly from the west and north winds. The town of Leeds is of great extent, but it is possible to traverse it by any road without exceeding 3 miles an hour. The streets are all cobbled, and the sidewalks are most beautifully kept. The streets are for the most part about 40 feet in width, and the houses are built very closely.
yards long and 66 broad; divided into six departments, which are called streets. Each street contains two rows of stands, and each stand measures 22 inches in front, and is inscribed with the name of the clothier to whom it belongs. The original cost of each stand was £4; this price advanced to as much as 30s. 2d. at the beginning of the present century, but it has now fallen even below its original value, not owing to any decrease in the quantity of manufactured goods, but to the greater prevalence of the factory system over the domestic system of manufacturing. An additional stand is built on the north side of the Coloured-Cloth Hall and is used chiefly for the sale of ladies' cloths in their undyed state. The White-Cloth Hall is nearly as large as the Coloured-Cloth Hall, and is built on the same plan; the price of its stands has undergone similar reductions to those of the other, arising from the same cause. The markets for mixed and white cloths are held on Tuesdays and Saturdays, on which days only the merchants are permitted to buy in the halls. The time of sale is the forenoon, and commences by the ringing of a bell, when each manufacturer is at his stand, the merchants go in, and the sales commence. At the end of an hour the bell warns the buyers and sellers that the market is about to close, and in another quarter of an hour the bell rings a third time, and the business of the day is over. They are attended by all who reside in the town, and in the hall after this time. The White-Cloth Hall opens immediately after the other is closed, and the transactions are carried forward under similar regulations. The cloth is brought to the markets in the undisguised state, and it is dressed under the direction of the merchants.

Markets, Police, &c. — The Commercial Buildings may be considered as an Exchange for the merchants. The form is a parallelogram, with the south-western corner rounded. The interior is spacious, and furnished with the most considerable architectural beauty. The entire edifice is of stone. Until 1824, the markets of Leeds were held chiefly in streets and thoroughfares, to the great annoyance of residents and passers-by. At present the various market-stalls are arranged so commodiously, and equal to the supply of all the wants of the dense population. The Free Market occupies an area of 9758 square yards; the Central Market is a spacious covered building, and one of the principal ornaments of the town. It is a handsome pile, in the Grecian style. It was erected by a company of shareholders, and cost 35,000£. The area is divided into three walks, with stalls. The streets or alleys round the market are occupied chiefly by butchers. The South Market was also erected by a body of proprietors; it is chiefly used for the leather dealers, of which, eight are held annually. The Corn Exchange is one of the ornaments of the town. The chief features of its elevation are two Ionic columns in antis, which support a circular roof, embellished by a pediment, and cupola, raised above the whole. Between the columns is a niche with a statue of Queen Anne, which was restored at the expense of the corporation, and removed from the ancient moot-hall to its present situation. The corn market is held every Saturday, when the largest and most splendid banks of Leeds are numerous, and have always offered those facilities so needful to the prosperity of a commercial town. The court-house, under which is the prison and police office, was completed in 1813. In it, the quarter-sessions and the petty sessions for the borough are held. The Michaelmas sessions for the West Riding are also held here. The gaol affords no opportunity for the classification of prisoners, and has only a small air-yard. A new borough gaol is however in progress. The cavalcade, which is on the northern boundary of the township. The buildings and the parade ground occupy more than eleven acres of land. This establishment was provided by the government, at a cost of about 28,000£, granted in 1819 and 1820. The workhouse is a large and well-conducted establishment, now under the control of a board of twenty guardians. The present management is in no degree inferior, as regards the comforts of its inmates, to what it was towards the close of the last century; but it was visited in 1824 by the inspector of Poor Law Commissioners, and certain recommendations. The other establishments connected with the economical and general police of the town are the water-works, the gas-works, and the fire-engine establishments. Water-works have existed in the town since 1694; the town is supplied with water from several springs. The increasing wants of the population. In 1790 efforts were again made, but all these have been insufficient, and at the present time the water is not only insufficient, but in quantity only equal to about one-fifth of the demand. An act was however obtained in 1837, and works are in progress which seem to promise a full supply. The town was badly and partially lighted with oil lamps to 1828, in which year it was lighted with gas. A new company was formed in the town, and the construction consequent on the existence of two gas companies, it is now very efficiently lighted. The town contains good public baths. The building has a neat elevation, adorned with Ionic columns and pilasters. There is also a spacious swimming-bath, and a spring which supplies it. The fire-engine establishments in various parts of the town are well kept up, and are in every respect creditable to the insurance companies. The savings' bank has a large number of depositors; the subscription to it is not yet, however, so well sustained; they take the usual forms of benefit societies, annuity societies, and widows' fund societies. The places of public amusement are the theatre (a plain building), which is not much encouraged, the assembly-rooms, and the music-hall, the latter of which is now used for various public purposes. An elegantly proportioned concert-room and a well-appointed news-room are provided in the Commercial Buildings. The temperance societies in Leeds have accomplished a great moral change in the habits of the community. The late establishment of a temperance hall, in which a day police has been attended with the effect of ridding the borough of disorderly persons.

Charitable Institutions, Trusts, &c. — The Leeds In- land Revenue was established in 1694, and many additions have been made to it, and it now possesses accommodations for more than 150 in-patients. This institution is secured from the too near proximity of other buildings by the purchase and presentation of 4000 square yards of building land near the Town Hall, which are enclosed in a square. The same gentleman is indebted for other munificent acts. The subscriptions and collections in support of the Infirmary amount to about 2500£ annually; the rest of the revenue is obtained from legacies and benefactions, from dividends of 3000£ stock, from certain mortgages. The number of in-patients who participated in the benefits of the infirmary in 1835 was 1600, and of out-patients 2300. The House of Recovery, for the reception of persons attacked by infectious Fevers, may be considered, &c.

There is also a trust for the repair of highways and near Leeds is of considerable amount, but the stock varies according to the assistance rendered by the committee to the different townships. There is also a trust for the repair of highways, which is laid out in clothing, and distributed at Christmas. The estates of the free grammar-school are vested in the committee, and the property of several other charities. Harrison's hospital and Charity School are well managed and supported by various bequests. Jenkinson's almshouses, founded with money bequeathed in 1643, provide a residence for eight poor and aged persons. Certain rents are also distributed by the will of the founder among the aged poor of Leeds. Several stipulated annuities are made to the funds of this charity by later bequests. Potter's hospital, endowed in 1729, provides for the reception of "ten antient, virtuous, poor, necessitous widows;" the income of this charity has been considerably increased by later endowments. The sources of posthumous charity are about more than 50,000£ a year: in addition to this amount, upwards of 6000£ a year are distributed in the town and immediate neighbourhood for the support of local charities, and the poor are also assisted by the charity of the inhabitants of Leeds are among the most munificent contributors to the various county charities and institutions for the support or education of those who labour under
physical infirmities. The smaller charities of Leeds are the Benevolent Society, and the clothing, visiting, soup, and other benevolent and charitable institutions. The nature is called for, either under circumstances of periodical and foreseen presence and difficulty, or for extraordinary and unlooked-for calamities.

Burton's Mark, the parish church, dedicated to St. Peter, is now (1839) being rebuilt upon its ancient site. The late building is supposed to have been erected in the time of Edward III., and enlarged during the reigns of Henry VII. and VIII. The old vicarage-house was pulled down, and a new one was built at each, at the expense of a large and handsome mansion was purchased in a very salubrious part of the town. The vicarage is worth upwards of 130l. per annum. In consequence of the disorderly process of voting at a contested election for the office of vicar in 1748, the then vicar's house and vicarial tithes were computed in 1823 for 500l. a year, arising from 14,000l., one half of which was the gift of R. F. Wilson, Esq. and the other half was raised by subscription. The church was erected and endowed at the cost of John Harrison, Esq. This benefit is a perpetual curacy, and is now worth 375l. per annum. Trinity church was built by subscription, and endowed by the Rev. Henry Robinson, the nephew of the above-named John Harrison, and his family. Several precedes about the building and endowment by subscriptions, amounting to more than 11,000l. The townships of Hunslet, Holyoke, Beeston, Armitage, Wortley, Farelly, Headingly, Kirkstall, Bramley, and Chapel Allerton have also several Episcopal places of worship in the town are St. Paul's, St. James's, Christchurch, St. Mary's, St. Mark's (the three latter built under the Million Act), and St. George's church, which was erected for subscription purposes. The Churches and Chapels have also other Episcopal places of worship. The Cathedrals have two chapels in Leeds, and have lately erected a most splendid structure, to which the name of St. Ann's Catholic Church' has been given. The exterior of this church consists of a nave and side aisles; its insides dimensions are 130-feet 6 inches long, by 52-feet 6 inches wide, and the outside extreme extent, including the tower, is 124 feet 6 inches. The tower and spire rise to the height of 150 feet. It is built in the style of architecture which prevailed during the sixteenth century. The accommodation in the body of the church are for 600 persons, with sufficient room for 200 other sitting to be fixed at a future period; and in the gallery, which is a front one, and very spacious, 200 sittings are provided.' (Leeds Mercury, Oct. 27, 1838.)

There are 32 dissenting chapels in Leeds. The Wesleyans have six chapels, two of which are the largest and handomest chapels in the kingdom, and each contains 3000 seats. The Methodists have six chapels, and three of the Wesleyans, have four chapels. The New Connexion Methodists have three chapels; the Primitive Methodists have two; the Female Revivalists have two. The Independents, a very numerous and influential body, have seven chapels, two of which are very costly in their accommodations. The Unitarians have two chapels, in one of which Dr. Priestley officiated during the earlier period of his ministry. The Baptists have two chapels. The Inghamites, a sect which originated at Leeds, and which approach in their faith to the moderate Calvinists, have one chapel. The Friends, the Swedenborgians, and the Southcottians have each a place of worship.

In 1839 'the Leeds Cemetery' for the use of the people of Leeds was opened. It is situated in Woodhouse Moor, and occupies ten acres of land. The ground is laid out in walks and grassy lawns, and shaded with ornamental trees and shrubs. The same person is responsible for the management, and on the sexton reside in houses adjoining to and forming part of the principal entrance. In the centre of the cemetery is an elegant chapel. The gro-unds afford space for 14,000 graves in addition to the vaults under the chapel, and an intended arcade to connect them, and the numerous vaults, which may be subdivided to suit purchasers.

Schools and Scientific Institutions. - The free grammar-school of Leeds was first endowed by the Rev. Sir William Sheffield, in 1532, but it has received several subsequent endowments and additions. In 1624 John Harrison gave the present site, and the former edifice was erected at his expense. A dwelling-house for the head-master was built in 1780, and the school was rebuilt in 1823, on an enlarged plan. In 1815 the trustees adopted a resolution by which the school is to have the instruction of instruction in all the branches of the mathematics. In 1820 they further determined that the sons of all residents in Leeds should be freely taught, and that the masters should receive no premium. This school enjoys one of Lady Elizabeth Hastings’s scholarships, and one of the two schools at Emmanuel College, Cambridge, in case they are not filled up from the free-school at Nunnery. There are also three scholarships of 20l. per annum, at Emmanuel College, Cambridge, purchased by subscriptions from Leeds, Halifax, and Hovey schools. The Charity Commissioners reported of this school that it is ably and satisfactorily conducted. The number of scholars is upwards of one hundred. The annual income of the school is more than 150l. and 500l. is raised by subscriptions.

The Lancasterian school for 500 boys was commenced in 1780. We are informed that the last report of these pupils have been received since its commencement; that 350 were received in 1837; and 323 left in that year; 477 were in the school at the date of the last Report (1838). A library is formed for the use of the elder boys, and the elements of mathematical drawing are taught. The committee consider that a carefully conducted common education is given at an annual cost of six shillings each pupil. The school owes much of its present efficiency to the untiring labours of its constant visitor Mr. B. Goodnight. There are several other Lancasterian schools in the town, and the Wesleyans Methodists have four large day-schools on a system in many respects similar. In the central school of the National Society there are 267 boys and 166 girls. The whole number of Sunday-schools in Leeds, including this, is 3008 boys and 2012 girls. The Sunday-schools in connexion with the Sunday-school Union contain 4619 pupils, who are taught by 749 teachers. There are also several other Sunday-schools, which are not included in either of the above bodies. The Leeds infant school was established in 1826; the building at present occupied was erected in 1836; the school is intended as a model-school, and for the instruction of teachers.

The chief instructions at Leeds for supplementary education are the Leeds Philosophical and Literary Society established in 1820, which has about 300 proprietary and ordinary members and annual subscriptions; the Leeds Literary Institution, which has 500 members, and the Leeds Mechanics’ Institute, which has 260 members. The Philosophical Society has an extensive museum, a laboratory, and a library, and it has published a highly interesting volume of Transactions. The Literary Institution has a large reading-room, an extensive library, frequent lectures, and a collection of philosophical apparatus. Connected with the Mechanics’ Institute a peculiar feature requires notice. In 1837 thirteen of the Mechanics Institutions of the West Riding were formed into a union, to embrace the following instruments: - 1st. The union and advice on the local management of Mechanics’ Institutes, and the consequent rapid diffusion of improved methods; and, 2nd, The procuring of first-rate lectures on scientific subjects, systematically arranged and connected to each other, so as to present a connected and comprehensive view of each, at a much lower pecuniary cost than can be done by isolated engagements. This plan of the union of several institutions was strongly recommended by the president of the University of the City of London; it was brought forward at Leeds by Mr. Edward Baines; it has been found to answer as far as could be looked for during the first year of trial, and there can be no doubt but, with the connections which this scheme will suggest, it will work well for all populous districts.

There is a School of Medicine at Leeds, and a Society for the Encouragement of the Fine Arts which has periodical 3 D 4.
exhibitions. The Leeds library, founded in 1768, on the recommendation of Dr. Priestley, is one of the most extensive in the north of England. There are also the New Subscription Library, the Ecclectic Library, the Parochial Library, and the Young Men's Library.

A society for the promotion of franks and frankpledges. The last year for the establishment of Botanical and Zoological Gardens; they occupy about 20 acres of land, and are now rudely laid out, ponds have been dug and shrubs planted; the greenhouses and conservatories will be immediately erected.

Ralph Thoresby, Esq. (sometimes called Lier, a circle of the province of East Friesland in the kingdom of Hanover, with a population of 18,000 inhabitants. Leers, the capital, is a market town, with a manufactured 534' 15' 23' N, on the river Leda, which falls into the Ems about three-quarters of a mile below the town. It is an unfortified well built place; it has one Lutheran, one Calvinist, and one Roman Catholic church, a Moravian chapel, a syna-}
as an apparently necessary consequence, the criminal jurisdiction of the precent or district was immediately transferred. In these private leets the grantees, called the lord of the leet, performed the duties which, in the public leet or court, after the churbman or earl had permanently abdicated himself upon the sheriff. Their duties, he might perform either personally or by his steward, though some writers, overlooking the authorities, have doubted whether the lord can sit in person. As a compensation for this, and this is the antient custom, the grantees were to keep and practice the privilege and influence he had procured the grant of a private leet to claim from tenants a certain small annual payment by the name of certain leet or court-leet. The tenants within the precincts of a private leet were entitled to presentments-service. The lord himself, or his tenants, formed a body politic wholly independent of the tourn or leet of the hundred; whilst such, upland, or unprivileged, towns as had not been formed into or included within any private leet, still continued the ancient right by which the tithing-man or reeve ruled four men of the tithing, and formed part of the body politic of the hundred. Each of these communities appears to have exercised most of those rights which it has of late years been supposed could not exist without a royal incorporation. In many towns and boroughs the antient authority of the court-leet was in later times superseded by charter of incorporation, in some of which the important right of popular election of magistrates was preserved entire; whilst in the greater number it is the right, though considerably narrowed, that was preserved, if not more restricted by various character and degrees, which are still to be seen in incorporated boroughs not regulated by the Municipal Corporation Act. In other respects those of the hundred, and even a little town, was submitted to the changes which had taken place in the habits of the people since the institution of the court-leet. Many of the functions of the magistrates in the new incorporations were borrowed from the then comparatively recent institution of justices of the peace.

II. Constitution of the Court-leet.

This court is a record court, having jurisdiction of such suits within its limits as are not decided without giving summons to the defendant, under the common law. The exclusive exercise of criminal jurisdiction being inherent in the kingly office, all criminal matters are deemed pleas of the crown, and the courts in which such pleas are held are the king's courts, although granted to a subject; for such grant operates merely as an authority to the grantee to preside judicially by himself or his steward, and to take the profits of the court to his own use. The authority so exercised under the king's grant is called a presentment in the kingly office, or a suit to be heard at bar, and it may be claimed either by a modern grant or by prescription, i.e. long established user, from which an antient grant is presumed. The grantees, whether claiming under a grant still extant or by prescription, is commonly the lord of the manor, and the court is held within the actual limits of the manor, or with its boundary at some former period. There may however be several leets in one manor, and a leet may be appendant to a town, or to a single house. It is not necessary that the lord of the leet should have a manor, or indeed that he should have any interest in the land or houses over which the leet jurisdiction extends. It is competent to the crown to grant to A a leet over the lands of B, and the grantees of a leet in his own land would be the lord and his subinfeudants. The leet was originally granted for the more convenient administration of justice, the lord may be required by writ of mandamus to hold the court. Upon non-user of a leet, the grant is liable to be seised into the hands of the leet, and must be either absolutely as for a forfeiture, or quo warranto, that is until the defect be amended; the same consequence ensues upon neglect to appoint an able steward and other necessary officers, or to provide instruments of punishment. In the most remote states of the law, a suit to be heard at bar must be, twice in the year, within a month after Easter, and within a month after Michaelmas, and even the former cannot, unless warranted by anteage usage, be held at any other time except by adjournment. The court appears to have been generally held in the open air. It should be held at its accustomed place, though, if sufficient notice be given, it may be held anywhere within the precinct. All persons above the age of twelve years and under sixty (except peers and clergymen, who are exempted by statute, and women and aliens), resident within the precinct for a year and a day, whether masters or servants, owe suit to (i.e. personal attendance at) this court, and here they ought to take the oath of allegiance. The suit to the court-leet is said to be real (i.e. regal or due to the king), because every one bound to render a suit to such courts is in due respect of the oath of allegiance unless he has taken it before. But where a non-resident is bound by tenure to join with the tenants in making presentments at the court-leet, the duty is not suit-real, for he shall not be sworn to his allegiance, simply, at this leet. Therefore, the ancient practice of doing one of the services due from the tenant to his lord in respect of the tenure. For the non-performance of such suit the remedy is by distress, as in case of other suit-service in this case, the suit-service, i.e. a suit forming one of the services due from the tenant to his lord in respect of the tenure. For the performance of such a suit the remedy is by distress, as in case of other suit-service

III. Jurisdiction of the Court-leet.

The Anglo-Saxon Hundred Court appears to have had jurisdiction in all causes, civil, criminal, and ecclesiastical; and also to have had the cognizance and oversight of all the communities of fiefdoms within the hundred, the members of these communities being bound for that purpose to attend at the Hundred Court by themselves or their elected representatives. The jurisdiction of the Hundred Court in ecclesiastical matters was exercised by an ordinance of William the Conqueror, forbidding the attendance of the bishop. It was the province of the court-leet, as well the public leet, the private leet, and the coram rege, to restrain all offences against the public peace, and to enforce the removal of all nuisances affecting the public convenience. The leet jury possess a legislative authority in establishing by-laws. By laws made in a court-leet and embodied in the presentments of the tenants, the granting of matters properly cognizable in the leet are binding upon tenants, but not upon strangers. [BY-LAW.] A by-law imposing a penalty of 5s. per month for taking or placing an abiding security to the overawe of any person, may charge upon the parish was said by Lord Hale to be usual and valid. The leet jury elect their own chief magistrates, the reeve or constable, &c., of the private leet, and, as it would seem, the high constable (sometimes called the alderman) of the hundred.

Before the Norman conquest, and probably for some time after this, court of the leet was, if not the sole, at least the ordinary tribunal for the administration of criminal justice. Until the thirteenth century, by virtue of a power with respect to certain heinous offences, the punishment of death was substituted for pecuniary compositions, no crime appears to have been punished by death except that called a felony. The laws of the time are "opener's," a theft where the offender was taken with the murther, that is, with the thing stolen upon him. [ROBBERY.] Of this crime, as requiring no trial or presentment, the leet had no cognizance. Other offences, of however serious a nature, subjected the party to a mulct, or pecuniary fine, the amount of which was in many cases determinate and fixed.

Offences to be merely inquired of in leets are arson, burglary, escape, harbey, manslaughter, murder, rape, resuce, sacroge, and treason, any of which may be rendered or felony by common law. Those offenses being presented by the leet jury as indictors, and the indictment being certified to the justices of gaol delivery, the indictees may be arraigned; but they cannot be arraigned upon the mere production of the court-roll containing the presentments. Formerly all offenses inquirable in leets were also punishable there by amercement; but the power of adjudicating finally upon crimes in courts leet, whether public or private, is now limited to such matters as are still left either in the hands of the coroner or county court. A pecuniary composition. No matters are cognizable in the leet unless they have arisen or have had continuance since the last preceding court.

An amercement is a pecuniary punishment which follows of course upon the presentment of a default or of any offence committed out of court by private persons. Amercements are to be mitigated in open court by afferees (affereuses from affere or affaire, offerer, to tax, or fix a price, hence the term affere use in the old French law to denote the judicial fixing of a price upon property
to be sold). The afferees by their oaths affirm the reasonableness of the sum at which they have assessed the amercement. This course is sanctioned and confirmed by Magno Charta, which directs that amercements shall be assessed by the peers of the offender, i.e. the pares curiae, or suitors of the same court. [Jury.] The amercements, being in all matters but one, a tax levied by the steward, and levied by the bailiff under a special warrant from the lord or steward for that purpose, by distress and sale of the goods of the party, which may be taken at any place within the precinct, even in the streets, or other places, without an action of debt for such amercement. For a nuisance, the jury may a-merce the offender, and at the same time order that he be distrained to amend it.

The steward of a leet is a judge of record, and may take recognizances of the peace; and he may impose a fine for a contempt or other offense committed in court, as where a party obstructs the jury in the execution of their duties, or by public officers in the discharge of their duties out of court. The amount of the fine is at once fixed by the steward, and therefore, though sometimes loosely called an amercement, it is not to be a merced. When a suitor present in court refuses to be sworn, it is a contempt for which a merced may be inflicted; so if the jury, or any of them, refuse to make a presentment, or depart without making it, or make it before all are agreed. But the fine must be set upon each person individually. For the fine so imposed the lord may distrain or bring an action of debt against the offender, and maintain an action which the steward, or the lord or steward has the same power as the judges in the superior courts. He has indeed no power to award imprisonment as a punishment for offences presented in the leet, but he may impose the subject of amercement only; but he may imprison persons indicted or accused of felony before him, and persons guilty of a contempt in face of the court.

If a nuisance within the jurisdiction of a leet be not presented at the court-leet, the sheriff cannot inquire of it in his tourn; for that which is within the precinct of the leet is exempt from the jurisdiction of the tourn; which has merely the same jurisdiction as private leets in such parts of the hundred as are not included within any private leet.

A private trespass cannot be presented at the court-leet, even though committed against the lord; and a custom to present and a merced for such trespasses is void.

Of common right the constable is to be chosen by the jury in the leet; and if the party chosen be present, he ought to take the oath in the leet; if absent, before justices of the peace. If he refuse to accept the office, or to be sworn, the steward may fine him. If the party chosen absents himself, the jury may represent his refusal at the next court, and then he is amerced. But a person chosen constable in his absence ought to have notice of his election. A mandamus lies to the steward of a leet to swear in a constable who has been the subject of amercement only; but he may imprison persons indicted or accused of felony before him, and persons guilty of a contempt in face of the court.

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The common notice of holding the court is to be three or four days; but it is now usual to give fifteen days' notice. An amercement at a court of which sufficient notice has not been given is void. But even where there is a clear prescriptive usage to give a certain number of days' notice, the court may, if the resbite cannot be held on the court on the ground that such notice has not been given.

The functions of the steward of a court-leet are mainly, if not wholly, judicial. Ministerial acts are to be performed by an inferior officer called the bailie or bailiff, who of common right is appointed by the lord or steward, though by custom he may be chosen by the jury, and sworn with the other officers chosen at the leet; and where, in a leet appellant to a borough, the bailiff so chosen has a discretionary power in impanelling the jury, this important function is not subject to a sufficient guarantee to inquire into the title of the party exercising it. The steward, at the customary or at a reasonable time before the holding of the court, issues a precept under his seal, addressed to the jury of the leet, to enter at the court and appear at the time and place appointed for holding the court, and to summon a jury. The notice may be given in the church or market, according to the usage of the particular place; but it is said that if it be not as antient leet, personal notice is necessary. According to the course most usually pursued, the steward opens the court by directing the court to be proclaimed; and this being the king's court, it is necessary that three proclamations be given, and that the proclamation be read (hear) three times, and then saying once, 'All manner of persons who are resbite or decliners and do owe suit roll to this leet, come in and do your suit and answer to your names upon pain and peril which shall ensue.' The bailiff then delivers to the steward of the leet, if the leet is summoned as jurymen, together with the suit or resbite roll. The suit-roll is then called over, and those resbite who are absent are marked to be amerced. The bailiff then makes a roll of the names of those resbite who attended, and then saying 'If any man will be essigoned, come in, and you shall be heard.' The steward having called for the essigons, enters them. The essigons should regularly be adjourned to the next court for examination in the course of the other matters, as of many others over which the court-leet has no jurisdiction. Justices of the peace are always accessible, whereas the court-leet is open only at distant intervals, and for a short period, unless it be continued by adjournment, which can only take place for the despatch of existing business. Another cause of the declension of these tribunals is that except in a very few cases the jurisdiction of the leet is confined to offences punishable at common law. In statutes providing for the repression of such offences the leet was commonly passed over in favour of justices of the peace. Blackstone remarks 'the almost entire disuse and contempt of the court-leet and sheriff's tourn, the king's antient courts of common law formerly much revered and respected. The defects of the change in the administration of justice by summary proceedings before justices of the peace.' It was not however left to the learned commentator to make this discovery. The course of the world and the introduction of the modern system of justices of the peace, we find the Commons remonstrating against the violation of the Saxon principle of self-government and domestic administration of justice, resulting from the encroachments made upon the antient jurisdiction of the leet by giving to the new tribunal of the justices of the peace a concurrent jurisdiction in matters usually brought before the court leet, and an exclusive jurisdiction in other important matters. In the last year of Edward III. (1377) the Commons complained that the king no justice of the peace should inquire of anything cognizable in the courts of lords who had view of frankpledge, or of any cognizable in any city or borough within the jurisdiction of the court leet, and should thus deprive the lord of the peace and the enforcing of the statute of labourers. To this petition the king returned the following unsatisfactory answer—'The statutes heretofore made cannot be kept if the petition be granted.' At this time, and until about 1680, therefore, it would appear that the use of resbite was almost against the king's peace, not the king's.
The constables are next examined as to their compliance with the orders of the province, and the constables in turn are examined by the general. After this the last jury is formed. This jury is chosen from the body of the suitors, and consists of not less than twelve, nor more than twenty-three. In some leets the jury continues in office for a whole year; in others the jurors are re-elected at the commencement of the assizes. The right of coram deudge for the steward to nominate to the bailiff the persons to be summoned on the jury is valid. If a sufficient number of residents to form a jury cannot be found, the steward has presented the matter to the bailiff. The leet is usually held by the bailiff or the constable who is not on the jury, and on the next term the same assembled jury is called together. This is a practice which is contrary to the law, and the court is bound to consider the matter on the evidence given and the sworn testimony. If the court is not satisfied that the jury can be summoned on the jury is valid. If a sufficient number of residents to form a jury cannot be found, the steward has presented the matter to the bailiff. The leet is usually held by the bailiff or the constable who is not on the jury, and on the next term the same assembled jury is called together. This is a practice which is contrary to the law, and the court is bound to consider the matter on the evidence given and the sworn testimony.
or the contingency did not happen. The recent statute, 1 Vict. c. 26, sect. 33, has modified the old rule, and directs that when legacies are bequeathed to a child or other issue of the testator who shall die in his lifetime, leaving issue, and such issue shall be living at the testator's death, the legacy shall not lapse unless a contrary intention appears upon the face of the will, but shall take effect as if the legatee had died immediately after the testator.

The rules by which gifts of legacies are construed are derived from the civil law, or rather are a part of that law which prevails in the ecclesiastical courts; for although the court of chancery has concurrent jurisdiction over legacies with the ecclesiastical courts, yet to prevent confusion it follows the same general rules. But however a legacy be characterized as personal or incorporeal, or be a chattel or real estate, or within or without the city, whereas all other public functionaries whose duties were exercised beyond the limits of the city could not enter Rome till they had laid aside their functions; or because Roman law, unlike the Schoenberg, which he applied to the case of a legatino, could not enter Rome unless he obtained permission in the form of a legatio. Cicero, who on one occasion inveighs vehemently against the legatio libera, could defend it when it suited his purpose, and in a letter to Atticus (l. 1.) he expresses his intention to visit Caelian Gaul in this capacity for the purpose of furthering his election as consul.

At the present day a legate signifies an ambassador, or nuncio, of the pope. They are of the highest class of ambassadors. [AMBASSADOR; NUNCIO.]

They are given in various kinds of cases, legatus a latere, legatus natus, &c. Legates a latere are sent on the highest missions to the principal foreign courts, and as governors of provinces of the Roman dominion, hence called legations. Legatus natus is a person who holds the office of legate, as a temporal functionary, and has the same status as a governor of a province, or minister of state, and is, as we should say, a legate ex officio. As this office or title exempted the holder from the authority of the legates a latere, it was earnestly sought after by the bishops. The Roman law, however, provides that legates a latere and there are now three or four German bishops permanently invested with the privileges of the office. Legates of a lower rank than cardinals are called nunci apostolic.

LEGEND (from the Latin word legendum, a thing to be read) is used commonly of a class of fabulous or dubious narratives, such as the exploits of heroes of the middle ages, between history and fiction, tales of superstition, or other subjects, in which credulity and imposture find free course and exercise. Thus legendary come to be regarded as which is usually rather matter of tradition than of written evidence. In our old authors the word occurs in its simple meaning. Legend is also used technically to denote the words encircling a coin; to writing on tables the word inscription, which is applied, and which is used instead of legend where a sentence, instead of encircling, occupies the place of a device on the coin.

LEGENDRE, ADRIEN MARIE, an analyst, whose name is inseparably connected with Lagrange and Laplace in the enumeration of the powerful school which existed in France at the time of the Revolution, was born at Paris in 1752, and died there January 10, 1833. No authentic account of his personal life has yet been published, but we can only now say that it was passed in strenuous and successful exertions for the advancement of mathematical science and of its applications. He never filled any political post, or took any marked part in public matters: he was, we believe, no favourite of any government, and his scientific fame did not procure him more than a very moderate competency. The writings of M. Legendre consist of various papers in the Memoirs of the Academy of Sciences, and several separate writings of which we shall give a slight account.

The first appearance of Legendre as a mathematician was (A.D. 1782) as the writer of two papers, one on the motion of resisted projectiles, the other on the attraction of spheroids, which gained prizes from the academies of Bonn and Paris, and a third and the former as the successor of D'Alembert. In a memoir on double integrals, published in the volume of 1788 (though presented at the end of 1799), he dissected a method of transforming an integral with two variables to an integral with one variable, and in which he applied the question of the attraction of spheroids. He was the first who extended the solution of this question by the aid of modern analysis: it being not a little remarkable, that the problem in the year 1773 required the power of Lagrange and D'Alembert, which he applied in the twenty-first year of his age. Modern analysis as it had been effected with the ancient methods by Newton and Maclaurin. Various other memoirs by Legendre refer either to points of the integral cal-
culus, or to his geodetical operations. In 1787 he was appointed one of the commissioners for connecting the observatories of Greenwich and Paris by a chain of triangles. Cassini de Thury had memorialised the British government on the expediency of this step: the execution of which was committed to General Roy on the English side, and to Legendre, Cassini, and Méchain on the French. Much of the work was completed in 1787, and a memoir of Legendre, published in the volume for that year, upon some theoretical points, showed how simple and useful the theorems which carry the name of his inventions with them. For it is the celebrated proposition relative to the 

Aerial excess [Triangonomy] of a small spherical triangle. An account of the actual triangles constructed in his memoir, and of each of those constructed by grand French are of the meridian was completed, Laplace and Legendre were employed to deduce the form of the sphericoid which agreed most nearly with all the observations. In the construction of the large triangonometical tables (which still remain unpublished) he contributed some simplifying theorems. In 1806 he published his 'Nouvelles Méthodes pour la Détémination des Orbites des Comètes,' in which he gives a method the peculiarity of which then was that it allowed of the correction of the observations at any part of the process. It may be doubtful whether the method itself was an improvement upon which those who then were in use; and if it were, it is still superseded by others posterior to it. But this tract is further remarkable for the importance of the method of least squares. [LEAST SQUARES, METHOD OF.] Whether Legendre had seen the hint of Cotes or not, he made a proposal of great ingenuity, and introduced, as a means of practical application of this method, a set of 900 foot soldiers, stationed in the forward stations by Laplace to be entitled to confidence on the strictest grounds of principle.

Legendre applied himself at an early part of his life to the development of those integrals on which the determination of the area of an ellipse depends; and in 1796, Memoirs of the Academy for 1796 are two papers on the subject written by him. His 'Exercices du Calcul Integral,' published in 1811, contain, among other matters of both curiosity, an extended view of the same subject. He continued to devote himself assiduously to the cultivation of this new branch of science, and in 1812 and 1826 he produced the two volumes of his 'Traité des Fonctions Elliptiques et des Integrales Euleriennes,' containing a digested system, with extensive tables for the computation of the integrals. The work was hardly published when the discoveries of M.M. Abel and Jacobi appeared. These mathematicians, both then very young, had begun by looking at the subject in another point of view, and had produced results, which are presumed that the progress of the work of Legendre, it he had had the good fortune to find them. With a spirit which will always be one of the brightest parts of his reputation, Legendre immediately set about expounding the theorems to his own work; and in 1826 and subsequent years appeared three supplements, in which they are presented in a manner symmetrical with the preceding part of the work, and with the fullest acknowledgment of their value and of the merit of their authors.

To Legendre is also due the collection of the results obtained upon the theory of numbers [NUMBERS, THEORY OF], a subject to which he made very remarkable additions. The second edition of the work of Nombres was published in 1816, and the third in 1820.

The best known of Legendre's works is, as might be supposed, his Elements of Geometry, of which Sir David Brewster gave an English translation in 1824, from the eleventh edition: Legendre published his twelfth edition in 1823. Of the finished elegance and power of this very remarkable work it is not easy to speak in adequate terms: and next to the Elements of Euclid, it ought to hold the highest place among writings on the kind of subject. One would not be difficult to say how much of the rigor of Euclid has been sacrificed, and though those who determine to abandon the latter cannot do better than substitute Legendre's work, we hope that in this country the old Greek writer will remain in use; for no writer similar to that which has been chosen less than the best, and, having caused them to be disciplined, sent them to join the army.

On the institution of regular bodies of troops by Romulus, he is said to have divided them (probably each legion) into
companies of 100 men, and these were called manipules, from the bundles of grass which served as standards for the people who accompanied him when he attacked the palace of Amulius. (Aur. Victor, Origine Gen. Rom., c. 22.) The first line, or manipulum, consisted of the war elephants of the king (Liv., ii. 11); and in the time of Polybius the legion was divided into ten cohorts, each of these into three manipuli (Polyb., b. xii.), and each of the latter into two centuries. A maniple was composed of 200 men; and at a later period it designated a body of less than the original number. Under Hadrian and the emperors immediately following him the cohorts appear to have been of unequal strength. Vegetius states that the light-armed cohors quingenaria, anh the other article, only consisted of 1500 men and 132 horsemen; the second, called cohors quingenaria, of 555 men and 70 horsemen; that the remaining cohorts were nearly of the same strength as the second.

Servius Tullius is said to have divided the military force into five different classes of troops (Liv., i. 43), which were distinguished by their armour; but from the commencement of the republic, or nearly so, the order of battle consisted of three lines of troops, the hastati, the principes, and the triarii. (Liv., viii. 8.) The velites (light troops or skirmishers) had no particular station, and, except the latter, all the troops, according to Polybius, were armed nearly in the same manner.

The hastati of all the cohorts were stationed in the first line; the principes formed the second, those of each cohort supporting their own hastati; and the triarii were similarly disposed of, or the third line to support the principes. All the three classes were completely armed with cuirasses, helmet, and greaves; their buckler was 4 feet long and 24 feet broad, and five arrows were placed in its concavity, to be thrown when necessary. Each man was provided with a long and short sword, the blade of the former being strong, and made either to cut or thrust; and he carried, besides, two javelins, or pilum (Polyb., b. vii.). The only difference in the arms of the three classes seems to have consisted in the size of the helmets. In the hastati, the triarii, or third line, in the time of Varro being longer and heavier than those of the men in the other lines.

It is supposed that originally the principes were stationed in the second line, and that they were men of the superior classes; from which circumstance, or because they came first into action, they may have acquired their designation.

The front of the legion, when in order of battle, was formed by ten cohorts of the hastati, each cohort being arranged with 16 men in front, and 10 in depth. The second line, or that of the principes, was of the same strength, and was drawn up in the same manner. The line of triarii consisted also of ten cohorts; but these had only 10 men in front and 6 in depth. Every legionary soldier was furnished with five feet of breast plate, front, and as much in depth, in order that he might be enabled to make free use of his arms.

The cavalry of a Roman legion was divided into ten turmae, of about 50 horsemen each, who, in order of battle, were drawn up with 8 in front, and 4 in depth. Each legion of the allies had usually 600 horsemen; so that the cavalry of a consular army (consisting of two Roman legions and two legions of allies) amounted to 1800 men, which was the strength of a legion, in one of those without battle, or two, according to circumstances. The legionary cavalry were furnished with cuirasses and helmets, and they were accompanied by light-armoured horsemen, who served as archers.

LEGALISATION. In treating of legislation, we will explain, 1st, the meaning and etymology of the word; 2nd, the distinction between the legislative and executive powers of government; and 3rd, the difference between jurisprudential and legislative science—under which head we will make some remarks respecting the most convenient form for the composition of laws.

1. Meaning and etymology of the word Legislation. A magistrate who proposed a law was called a legatus, and his act was legem ferre (as we say, to bring a bill into parliament); and the law, if carried, was said to be perlata, or simply latn. Hence the term legum lator, or legislator, was used, as synonymous with the word legislator, when it is applied to the people collectively. A magistrate who has been of a law is called legislatum, and the last word signifying a person or body of persons exercising legislative power.

Legislation means the making of positive law. Positive law is made by the sovereign power; and every government has such a power, up to a certain point. But the imposition of a law is not the same thing as the interpretation of it, which is a faculty peculiar to the courts of law. Hence, the word legislative should not be applied to the courts of law, but only to the legislative departments of the state (the latter word signifying a person or body of persons exercising legislative power).

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The end of positive law, as explained in the same article, is the temporal happiness of the community. The end of positive law, as explained in the same article, is the temporal happiness of the community.
ABLE to conceive a body of law so complete, as to require subsidiary laws for carrying the principal laws into execution, and a power of making these subsidiary laws must, to a greater or less extent, be vested in the executive functions. In the article Law was distinguished laws necessary to be made by subordinate legislatures. The latter class of laws usually emanate from executive functionaries, especially judges. (Austria's Progress of Jurisprudence, p. 244.)

The Difference between Precedent and Legislative Science—Positive law may be viewed from the two following aspects. First, it may be considered as an organic system, consisting of coherent rules, expressed in a technical vocabulary. Secondly, its rules may be considered singly, with reference to the manner in which they promote the happiness of community; in other words, their expediency or utility. Law viewed from the former aspect is properly the subject of the science of jurisprudence. [Jurisprudence.] Law viewed from the latter aspect is the subject of a department of political science which is generally termed legislative science. (Legislation, in strictness, is concerned about the technical form, as well as the utility, of a law; but the term legislative science, as just defined, is sufficiently accurate for present purposes.)

It is important to bear in mind the distinction, just pointed out, between the scientific or technical excellency of a system of law, and the expediency or utility of the rules of which it is composed. The distinction, however, is by no means overlooked, either by lawyers. Thus Sir W. Blackstone, in describing the struggle made by the clergy to substitute the Roman law for the common law of England, gives the preference to the latter system on the ground of the importance and excellency of its subject. The excellency of a system of law, considered in a scientific point of view, has no connexion with the form of the government by which the laws were established. May be, and has been, cultivated as a science with admirable success under very bad laws. The scientific cultivation of Roman law scarcely began until the Empire; and the great legal writers of France lived in times of political anarchy or despotism. A system of law of which the practical tendency may be more or less useful, is to draw the line between its scientific and technical excellence. A code of laws establishing slavery, and defining the respective rights and duties of master and slave, might be constructed with the utmost juridical skill; but might, on that very account, be the more mischievous as a work of legislation. On the other hand, a system of law may be composed of rules having a generally beneficial tendency, but may want the coherency and precision which constitute technical excellency. The English system of law affords an excellent illustration of the latter; the modern character of the legislature by which its rules were enacted or sanctioned, has a generally beneficial tendency; but considered in a scientific point of view, it deserves little commendation. The writings of the English lawyers like all other useful contributions to legislative than to jurisprudence or legislative science. The remains of the writings of the Roman lawyers, on the other hand, are of little assistance to the modern legislator, but they abound with instruction to the jurist.

The distinction between the technical excellency of a law and its expediency, or (in other words) between its form and its substance, is also important with reference to the question of codification, i.e. the making of a code of laws.

The making of a code of laws may involve any one of the three following processes:—1. The formation of a new system or body of laws. 2. The digestion of written laws, issued at various times, and without regard to system. 3. The digestion of unwritten law, contained in judicial decisions and authoritative legal treaties. The ancient codes of law were, for the most part, works of new legislation; such were, for example, the codes of the gods of Rome, the Constitutions of Syracuse, and others. The codices of Theodosian and Justinian afford examples of the digestion of written laws. [Constitutions, Roman.] The Digests or Pandects of Justinian afford an example of the digestion of unwritten laws, and also of the codification of the existing law of France, either written or unwritten; but they were in great measure founded on the existing law. The same may be said of the Prussian Landrecht. The statutes for consolidating various branches of the criminal law, the bankruptcy law, the customs law, the distillery laws, &c., are instances of the digestion of the written law of England. The Criminal Law Commissioners have furnished a specimen of a digest of the English common law. (First Report, 1835.) The digestion of existing law, whether written or unwritten, requires merely juridical ability; the making of new laws requires, in addition to the knowledge and skill of lawyers, that an organized legislative authority. In other words, the making of new laws requires both attention to their utility or expediency, and technical skill in the composition or drawing of them. Popular forms of government secure a tolerably careful examination of laws, with reference to expediency; but they do not secure attention to the technical or scientific department of legislation. Indeed nearly all the principal codes of laws have emanated from despotic governments, viz. the Roman, Frankish, Austrian, and French codes.

The difficulty of passing an extensive measure through a popular legislature has, in free governments, discouraged attempts at systematic digestion of the law. The Digest of the law of real property in the state of New York how affords an example of such digest passed by a popular legislature.

The most convenient form for the composition of laws is a subject which has exercised many minds, but on which we cannot, consistently with the plan of this Cyclopaedia, make more than an allusion. The inconveniences arising from too great proximity or too great conciseness in the phrasing of laws are stated by Lord Bacon, in the 66th and 67th aphorisms of his eighth book, De Augmentis, an attempt at classification of species, to avoid the obscurity which arises from the use of large generic terms, doubts are created as to the comprehensiveness of the law; for, as Lord Bacon well observes, 'Ut exceptio firmat via legis in casibus nec non expediens, i.e. enunciatur auctoritates, et non unilaterales.' (Ib. ap. 17.) On the other hand, vague and extensive terms, if unexplained, are obscure and frequently ambiguous. The best mode of producing a law which shall at once be comprehensive, perspicuous, and precise, probably is to begin with the abstract of the law, and to work down towards the language, and to illustrate the text with a commentary, in which the scope, grounds, and meaning of the several parts of the law are explained. A commentary such as we now speak of was suggested by Mr. Bentham [Tracts for Legislation, tom. iii., p. 284; De la Codification, p. 42]. The pen code recently prepared for India has been drawn according to this plan. Doubts will arise in practice respecting the interpretation of the most skilfully drawn laws; and the commentary is a guide to the interpretation of ambiguities. The declaration, made or sanctioned by the legislature which enacted it, of its scope or purpose. The want of such a commentary frequently causes the scope of a law to be unknown; and hence the tribunals are in most cases led to assign meanings which may be beneficial. (Dig., lib. i., t. 3, fr. 21, 22.)

It seems scarcely necessary to say that laws ought, where it is possible, to be composed in the language most intelligible to the persons whose conduct they are to regulate. In countries where the great majority of the people speak the same language (as in England or France), no doubt about the choice of the language for the composition of the laws can exist. In countries however where the people speak different languages, the language of the governing body differs from that of the people, or where the bulk of the people speak a language which has never received any literary cultivation, a difficulty arises as to the language in which the laws shall be written. Where the people speak different languages, authentic translations of the original text of the laws should be published. Where the language of the governing body differs from that of the people (which is generally the case when a law is ought to be issued in the language of the people. It is comparatively easy for a small number of educated persons to learn a foreign language; whereas it is impossible for the people at large speedily to learn their own, or to learn the language.

Thus in Lombardy uses the Italian language in all public documents. Where the language of the bulk of the community has not received a literary cultivation, the language used by educated persons for literary purposes, that is employed for the composition of the laws. Thus in Wales, the
Hugelands of Scotland, and the west of Ireland, the lan-
guage of the laws and the government is not Celtic, but
English; and in Malta, where the bulk of the people speak
a dialect of Arabic, the laws are published and administered
in Italian, which is the literary language of the island.

LEGENDA.

LEGRAND, JACQUES GUILLAUME, a French
architect and a writer on subjects of architecture, was born
at Paris, May 9th, 1753. When studying in the Ecole des
Ponts et Chaussées he attracted the notice of Perronet, and
was, being very young, entrusted many of the executive
jobs at the bridge at Tours. His taste however disposed him
far more to architecture than to engineering; and he accord-
ingly placed himself under Blondel, and, after his death,
pursued his studies under Clerisseau, esteeming this
character no less than his talents, bestowed his daughter
upon him in marriage. With Molinos, his friend and his
professional associate in most of his works, he made a tour
through Italy, and was preparing to investigate the remains
of art in Magna Graecia, when he was recalled home by the
government. From that period he was employed during
nearly twenty years in restoring several public edifices
and erecting others. One of his most noted works, which he
executed in conjunction with Molinos, was the timber
cupola of the Halle aux Bleis. The Théâtre Feydeau,
the restoration of the Fontaine des Innocents, of the Halle aux
Draps, and of the interior of the Hôtel Marbeuf, besides a
number of designs for private individuals, were executed by
him. He had been appointed to conduct the repairs of the
abbey of St. Denis, and had removed to that place for
the purpose of giving his undivided attention to the works, just
before his death, which happened November 10th, 1806.
Among his writings are the text to the 'Édifices de Paris'
and the 'Galerie Antiques' and many of the architectural
subjects in the 'Annales du Musée;' also the architectural
portion of Cassas's 'Voyage Pittoresque d'Isrie,' and that of
Pheniice; and an octavo volume to accompany Durand's
Parallèle d'Édifices.' This last was merely the sketch of
a more complete and detailed history of architecture,
which, had he lived to execute it as he had proposed, would
have extended to thirty volumes.

LEGUMINÆ, a peculiar vegetable product obtained by
isomolos from peas, and which he considers as a veget-
able alkali. To obtain this substance, ripe dried peas are
to be digested in warm water, to be reduced to a pulp in
a mortar, and water being added, the liquor is to be strained;
this is milky, and when allowed to deposit those substances
which are merely suspended in it, is still turbid, and appears
to contain legumin in combination with some vegetable
diacid. During evaporation a translucent substance sepa-
rates at the surface of the liquor, which appears to be legu-
imin combined with some vegetable acid; it is of a greenish
light-grey colour, does not reddish litmus, but restores its
blue colour when reddened by an acid; it is insoluble in
alcohol, but this dissolves the chlorophyly; after being
boiled long, it resembles a gum; it resembles a gum and
becomes transparent and white by drying. It dissolves in very
difficult vegetable acids, such as the oxalic and tartaric, but
the mineral acids precipitate it from solution in them. It
is readily dissolved by the alkalis and their carbonates in
solution, even when very dilute.

Legumin appears to be a substance intermediate as to
its glu-ten and vegetable albumen; it differs from the first in
being insoluble in alcohol, and from the last in readily dis-
solving its carbonates; it contains some sulphur, and
some azote, but less than an albumen; it is precipitated
from solutions which are not acid by bichloride of
mercury, and also by infusion of gall. It exists in peas and
beans to the amount of about 18 per cent. It has not been
completely analyzed.

LEGUMINOSÆ, or FABACEÆ, a very extensive
natural order of plants inhabiting the coldest and hottest,
the dryest and dampest parts of the world, assuming the
greatest variety of form and size, some being among the
smallest of flowering plants, others among the largest, in
tropical forests, and varying in an extraordinary degree
in their sensible qualities, some being eatable, as peas, beans,
and other pulse; others poisonous, as Pisidia, Tephrosia,
and a few others; some secreting a very volatile oil, others
destitute of all trace of such a substance

So many modifications of structure are found among
these plants, that although they may be generally defined
as being polyetalous exogens with definite perigynous
stamens, and a superior simple carpel, changing to a legume
yet each of these characters disappears in certain species, so
that none are free from exceptions. For instance, Ceratonia
has no petals, the stamens are indefinite and hypogynous in
Mimosas, and the fruit is not a legume in Dipterix and
many others. Nevertheless, as one or other of the above
characters is always present, although the others may be
absent or deviated from, there is but little practical dif-
culty in determining if a plant belongs to this order.

The species amount to some thousands, and are con-
veniently divided into three suborders, Papilionaceæ, Calp
atiféces, and Mimosaceæ.

Papilionaceæ have what are called papilionaceous flowers,
that is, of the five petals one is large, broad, spread open,
and called the standard; two others are parallel, convex,
or slightly spreading, and called series; and the two remain-
ning ones are also parallel, but united by their anterior edge
so as to form a body not unlike the keel of a boat, after
which it is named. In all these plants the stamens are
definite in number, and inserted with tolerable distinctness
into the calyx; but while many are indelphous, others are
monadephous or decandrous; the fruit is either a legume
a lomentum, or a drupe, or some form intermediate between
the first and last. It is here that the great mass of the
order occurs, especially in the colder parts of the world.
Peas, beans, clover, saintfin, lucerne, liquorice, indigo,
mediack, and trefoils, lupines, and numerous other common
European genera, belong to Papilionaceæ.

Cesalpinaceæ have the petals spread out, and nearly
equal sized, with distinct unequal stamens; they may be
considered the regular form of the order, while Papil
ionaceæ are the irregular form. Their fruit is usually a legume,
but not always. The Cassia, which furnishes the soma-
leaves of the shops, is the most interesting among them;
this suborder also belong the Tamarind and Algaroba
fruits, the trees yielding logwood, Brazil-wood, Sappan-wood,
&c., and Hymenaea, from which gum animi is procured.

Mimosaceæ have small regular flowers collected into head
numerous often indefinite stamens, usually hypogynous,
and a legume. They are unknown in cold countries in a
wild state, but in the hotter parts of the world they form
a strikingly beautiful portion of the vegetation. From the
much greater length of their stamens, their petals, and the
clustered compact arrangement of their flowers, the latter
often resemble tassels of silk, of the most vivid colours, in-
termediate between trees and herbs. Their bark is usually astrin-
gent, with a frequent internal mixture of gum. The gums
Arabic, Senegal, Sassa, and others, are produced by dif-
f erent species; catechu is the extract of the astringent bark
of Aucuba Catechu, and rose-wood is said to be the timber-
of some Mimosa inhabiting the interior of Brazil. One of the
most striking phenomena among the plants of this order is
the excessive irritability observable in the leaves of certain
species of Mimosa, such as M. pudica, sensitiva, &c., which
are hence called sensitive plants. It is however a special peculiarity, and not one of general occurrence; unless the falling up at night of the leaves of the whole suborder be regarded as an instance of the same irritible quality in a low degree.

1. A flower, much magnified; 2. a legume.

LEIBNITZ, GOTTFRIED WILHELM, was born July 3, 1646, at Leipzig, where his father (Friedrich) was professor of jurisprudence. Having lost his father at the age of six years, he was placed at the school of St. Nicholas, in his native city, from which he was removed in his fifteenth year to the university of the same place. Although law was his principal study, he combined the legal lessons of the elder Thomassius with those of Kuhn in mathematics, and applied at the same time with great diligence to phi-

ology, history, and, in short, to every branch of knowledge. Of ancient writers, Plato, Aristotle, and the Pythagoreans seem to have exercised the greatest influence on his mental character, and his profound knowledge of their writings has furnished many an element in his own philosophy, while it suggested a wish, as bold as it was impracticable, of reconceiving their several systems and combining them into one consistent whole. After further prosecuting his mathematical studies at Jena under Erhard Weigel, Leibniz returned to Leipzig, where he passed successively the degrees of bachelor and master in philosophy. On the latter occasion (a.d. 1664) he read his treatise 'De Principio Individualium,' in which he took the side of the nominalists against the realists. His pursuits at this time were chiefly of a mathematical and juridical character. In 1666 appeared his treatise 'Questiones Philosophiae ex Jure collectae,' which was followed in the next year by the 'Doctrina Conditionum.' The treatise 'De Arte Combinatoria' was published in 1666. This important and remarkable work contained a new method of combining numbers and ideas, and was intended to exhibit the scientific advantages of a more extensive design, of which it was only a particular application. This general design, which is sketched in the 'Historia et Commentatio Linguam Characteristicam Universalis' (Posthumous Works, by Raspé, p. 535), was the invention of an alphabet of ideas, to consist of the most simple elements or characters of thought, by which every possible combination of ideas might be expressed; so that by analysis or synthesis the practical discovery of all truth might be possible. Notwithstanding such early proofs of his genius and talents, Leibniz was refused a dispensation of age which he had asked for at Leipzig in order to take the degree of Doctor of Laws, which however he obtained at Altorf. His exertion on this occasion was published under the title 'De Causis in Jure Perplexis,' which was everywhere received with approbation. Declining a professorship here offered to him, in all probability from a distaste for a scholastic life, he proceeded to Nuremberg, where he joined a society of adepts in the pursuit of the philosopher's stone, and, being appointed secretary, was selected to compile their most famous works on Alchemy. For such an occupation he is said to have proved his fitness by composing a letter, requesting the honour of admission, so completely after the style of the Alchemists, that it was unintelligible even to himself. From these pursuits he was removed by the Baron Von Bornenburg, chancellor to the elector of Mainz, who invited him to proceed to Frankfort in the capacity of councillor of state and assessor of the chamber of justice. He here composed the valuable and important essay 'Nova Methodus discendi discendique Juris, cum subjiciis locis a desiderantibus.' At this time Leibniz began to prosecute the study of philosophy with greater energy, and to extend his fame to foreign countries by the republication of the work of Nicius, 'De veris Principiis et vera Ratio Philosophiandi,' to which he contributed many philosophical notes and treatises. To this belong two original compositions which are remarkable for their boldness of views, and as containing the germ of his later philosophical system. Of these two works, the 'Theoria Motus Converte' was communicated to the Royal Society of London, and the 'Theoria Motus Abstracta' to the Academy of Sciences of Paris. The latter city he first visited in 1672, in company with the son of his patron, and there formed the acquaintance of the most learned and distinguished men of the age; among others, of Malebranche, Cassini, and Huygens, whose work on the oscillation of the pendulum attracted Leibnitz to the pursuit of the higher mathematics. Leibniz next proceeded to London, where he became personally acquainted with Newton, Oldenburg, Wallis, Boyle, and others, with many of whom he had previously maintained an active correspondence. Upon the death of the elector of Mainz, he received from the duke of Brunswick-Lüneburg the appointment of math and royal librarian. He thus found himself able to travel at pleasure. He accordingly visited London a second time, in order to make known his mathematical studies and to exhibit his arithmetical machine. This machine, either a re-invention, or an improvement of that of Pascal, on an essential invention, is described in the first volume of his 'Miscellanea Berolinensia;' and is still preserved in the museum at Göttingen. From London Leibniz returned to Hanover, where he was engaged in arranging the library and in the discovery and development of the method of in-
finite/infinitesimal, which was so similar to the method of fluxions of Newton as to lead to a bitter dispute between the admirers of these great men, and ultimately between themselves, as to the priority of discovery. To decide this dispute the Royal Society of London, at the request of Leibnitz, nominated a committee, which decided in favor of Leibnitz ([FLUXIONS; COMMERCIIUM EPistololum]. There is little doubt however that the two methods were equally independent and original; but if the two claims are irreconcilable, the priority of publication gives the presumption in favor of Leibnitz, and makes his claim belonging also to the system of a mixed historical and political nature, 'Scriptores Rerum Brunsviciensium,' and the 'Codex Juris Gentium Diplomat'c,' the materials of which he had collected during his travels through France, Suabia, Holland, and Austria, was done by the king of Prussia, Frederick L. of Prussia, 702 absolute Commercium on Scriptores comprises the plurality of monads,' which appertained to the Theodicee, the pluralism, which established the doctrine of the Monads and will be called 'Monadologie' the 'harmony of the universe,' as established by the famous Lord of Duke Ernest Augustus of Brunswick. In 1683 he joined Otto Mencke in publishing the 'Acta Eruditorum' of Leipzig, and from 1691 he was also a constant contributor to the Journal des Savans, in which many of his most important essays on philosophy first appeared. To this period belong the composition of the 'Monadologie' and the 'Harmonie Pre- etable.' In 1702 Leibnitz was appointed president of the Academy of Sciences at Berlin, which the Elector of Brandenburg, afterwards Frederick L. of Prussia, had established at the instance of his queen, a princess of the house of Brunswick, and by the advice of Leibnitz himself. In 1706 the 'Theodicee' was published, with a view to opening the way towards the writing of a universal history; and in 20 years afterwards the 'Nouveaux Essais sur l'Entendement Humain,' in answer to the essay of Locke. In the previous year Leibnitz formed the personal acquaintance of Peter the Great, who, at Torquay, consulted him on the best means to reconcile the Church and the civil power; and it was from his valuable suggestions by the title and dignity of coun- cillor of state and a pension of 1000 rubles. Shortly after- wards, at the instance of Prince Ulrich of Brunswick, the emperor, Charles VI., elected him aulic councillor of the empire; and, in consequence, he visited Vienna, where he became acquainted with the Prince Eugene of Savoy and the chancellor Count Sinzendorf. Upon the elevation of the elector of Hanover to the throne of England, Leibnitz returned to Hanover, where, after the publication of a few political and philosophical works, he expired on the 14th November, 1714. He was buried on the esplanade at Leipzig, where a monument, in the form of a temple, indicates, by the simple inscription 'Ossis Leibniti,' the place of his burial. The best edage of Leibnitz, 'to use the words of Dugald Stewart, 'is furnished by the literary history of the eighteenth century, a history which, whoever takes pains to compare with his works and works, will find is one of independence, and the more so, whether, at the singular era when he appeared, he could have more accelerated the advancement of knowledge by the concentration of his studies than he has actually done by his aims.'

The first object of the philosophical labours of Leibnitz was to give to philosophy the rigour and stability of mathe- matical science. The latter derives this character both from its formal portion, or demonstration, and also from the nature of its object-matter. With a view to the former, Leibnitz assumed the existence of certain universal and necessary truths which are not derived from science, but grounded in the very nature of the thinking soul. (Princ.-Casel, p. 30-7.) And even mathematics may be supposed to be constructed of points or units, Leibnitz was led to the assumption of certain pri- mary constituents of all matter. These are his famous monads, which form the basis of his system. These monads are simple substances without parts, out of which all bodies are compounded by aggregation. They are real, because without real simple principles the composite would not poss- sess reality; and consequently, if there were no monads, nothing of any kind could exist. These monads may be considered with the atoms of Democritus or Epicure- rus. They are real units, the grounds of all activity, or forces, and the prime absolute principles of all composite things, which may ultimately be resolved into them. Leib- nitz's monads are not mere abstract mathematical points. Being without parts, they are necessarily unextended, indi- visible, and without figure. As such they are incapable of dissolution, and without natural decay or production, which is only possible in composite bodies. The monads therefore were created at once and momentarily, and in the same manner they must be destroyed or last for ever. Internally they admit not of change, since neither substance nor acci- dent can penetrate what is wholly without parts. Never- theless they must possess certain determinations or qualities, which are proportionate to the state of the monads in the universal system of things (principium indiscernibili). According to this principle all things must differ more or less, since otherwise they would be indistinguishable, for identical things are indiscernible. All created things are subject to change; consequently the monads also are subject to constant change, which is perpetual. This continuous change is only exter- nal, and does not operate internally; on the contrary, the outward change results from an internal principle; and this internal principle of change constitutes the essence of all force: the monads consequently are forces. Besides this principle of change every monad possesses also a certain schema of that which is changed, which, so to say, while it expresses the differences and multiplicity of the monad, yet comprises the multiplicity in unity. All natural changes proceed in gradation; consequently, while a part is changing, another remains unchanged, and the mon- ads consequently possess a plurality of affections and relations. This transitory state, which experiences and which is characterized by the fact, that the monad is perception, is perception, which however is unconscious (sine conscientia). The active force, by which the change or passage from perception to perception is accomplished, is an appetite (appetitus). By its action the monads are ever creating new perceptions, and rebuilding the universe, and consists, and besides which ought else is in them; con- sequently they may be termed entelechies, as possessing a certain perfection (et perpetuitas) and a certain self-sufficiency (autonomia), by which they could exist without the sources of their own activity. In lifeless things perception is uncombined with consciousness; in animated, it is combined with it and becomes apperception. The monads endued with apper- ception may be called souls, and, in combination with the monads endued with the consciousness of sleep or are stunned, for in sleep the soul is without apperception, and like the other monads. All perceptions however are closely dependent on each other; and when consequently the soul passes from sleep, the unconscious perceptions which are the forms of the perception in sleep are brought to light, and meets its present thoughts with the past. This fact affords an explanation of memory, and that anticipation of like results from like causes which guides the conduct of all animals. It is in fact the true nature of the mind, in league with the monads endued with apperception, which distinguishes the rest from his cognition of eternal and necessary truths, and from his knowledge both of his own and the Divine nature; and these constitute what is called reason or mind. By these necessary truths man becomes capable of the reflex art of distinguishing the subject (ego) and the object (res), and furnishes him with the fundamental principles of all rea- soning, namely, the principle of contradiction and the law of sufficient reason. According to the former, whatever in- volves contradiction is false, and its opposite true; the latter teaches that nothing can exist unless for some reason exist why it should be as it is, and not other- wise. This sufficient reason of all necessary truths may be discovered by analysis, which arrives ultimately at the primary notions which assume the form of identical proposi- tions, and are incapable of proof, but legitimate themselves. In the same manner all contingent truths must have an ultimate cause, since otherwise an infinite series of continu- ous species must be assumed in which reason would be lost. This is the ultimate cause of all things, which is called the existence of the universe is God, who is absolute infinite, perfection, from whom all things derive their perfection, while they owe their imperfection to their own nature, which is finite, imperfect, and relative to themselves, nothing being self sufficient without being in itself infinite and perfect. The Divine intellect is also the source of all eternal truths and ideas, and without God nothing could possibly be actual, and nothing could exist necessarily. God alone, as possessing infinite perfection, exists of neces-
sity; for as nothing obstructs his potentiality, he is without negation or contradiction, and is unlimited. But although there is a possibility of uttering each other, they are not therefore arbitrary or determined by the will of God. This is the case only with contingent truths. God, as the prime monad by whom all created monads were produced, is omnipotent; as the source of the ideas after which all other monads are created, and from whom they receive their nature, he is intelligent, and he also possesses a will which creates those finite truths which his intelligence recognises as the best possible. These same properties of intelligence and will, which contain a good so great that it is capable of perceiving or desiring. While however these attributes are in the highest degree of perfection in the Deity, in finite things they are variously limited, according to the respective degrees of perfection.

As every monad stands in harmony with all to all others, it expresses the relations of all and is, as it were, a mirror of the universe which is represented in a peculiar manner by each. Hence the greatest possible variety is combined with the greatest possible harmony. God alone can embrace all these relations, while finite minds have only and all the knowledge by the Deity. The universe is a monad, and the body of a monad is both full, and bound together into one continuous and coherent whole. The motion of each single monad, whether simple or in aggregation, affects all according to distance; and God therefore sees all future things, as well as present and past. But the soul is only cognizant of what is present to it; and although indeed it represents the whole universe, yet the infinity of objects surpasses its capacity, and its clearest representations are of those which immediately affect the body with which it is united; and the earth and sky, and all the bodies of the sun, moon, and stars, which has been designated by the term Optimism—that of all possible worlds, God has chosen and produced the best.

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metaphysical reputation is among metaphysicians, and perhaps higher.

Of the works of Leibnitz several editions and collections have appeared. The two principal are the following: 'G. W. Leibniti, Opp. omnia primum coll. stud. Dutens, Geneva, 6 vols.; and 'Essais Phil., Lat., et Franc., de diverses matières,' in the 'Comm unicis Laurentis Phil., et Mathematicum,' two volumes, quarto, containing the correspondence of Leibniz with John Bernoulli, was published at Lausanne and Geneva.

LEICESTER. [LEICESTERSHIRE.]

LEICESTER, ROBERT DUDLEY, EARL OF, one of Queen Elizabeth's principal favourites, was born about the year 1531, of an antient and noble family, an account of which is given in the 'Biography.' Edmund Dudley, the rapacious minister of Henry VII, was his grandfather. His father was John Dudley, duke of Northumberland, who, after attaining considerable celebrity during the reigns of Henry VIII. and Edward VI., was executed in August, 1553, for his adherence to the claims of Lady Jane Grey, who was his daughter-in-law. Robert Dudley was knighted by Edward VI.; he was imprisoned at the same time and for the same offence as his father; he was liberated in 1554; and was afterwards appointed master of the ordnance to Queen Mary. He had all those exterior qualities which were likely to ingratiate him with a queen; a youthful and handsome person, a polite address, and a courtly manner; his behaviour and intellect was no sooner on the throne than they bestowed upon him a profusion of grants and titles. He received from her lordships, manors, and castles; he was made master of the horse, a privy-councillor, a knight of the garter, high-steward of the University of Oxford, and grand master of the Order of the Garter; all the dignities, with which other dignities were subsequently added. Leicester was continually in attendance at court, and the queen delighted in his society. At an early age he had married Amy, the daughter of Sir John Rous. In 1560 this lady died suddenly at Cumnor under suspicious circumstances; she was murdered, as many supposed, at the instigation of her husband, who, seeing no bounds to the queen's friendship for him, found his wife an obstacle to his ambition. The queen admired him, trusted him, and allowed his great influence. She also projected a marriage for him, but it was not with herself. She proposed him as a husband for Mary, Queen of Scots. We doubt however whether the offer was sincerely made; and whether, if other parties had been willing, she would have given her consent. It is scarcely necessary to say that the union did not take place; and that Leicester, continuing to reside at court, played his part with the queen with consummate dexterity and cunning. During this resi-
dence, he composed an epistle in Latin, written in 1561, the marriage with the widow of Lord Sheffield, who bore him a son, to whom he bequeathed the bulk of his property in a will which designated him his base son. Lady Sheffield afterwards narrowly escaped death from some poison that was given to her. In 1562 he was created a peer, by the queen, Leicester, consented to marry Sir Edward Stafford. Whether Leicester caused the poison to be given cannot be ascertained, but it is certain that his anxiety to destroy all connexion with himself was the cause of his promoting her marriage. It would have been most dangerous to his ambition that the queen should hear of his intrigue, and he was successful in concealing it. His favour continued, and the queen was prevailed upon to visit his castle at Kenilworth, in Warwickshire, where he resided during the days with pageants and feasting, prepared in a style of magnificence unequalled even in those days. (Spiry's History.)

It is not surprising that Leicester, on account of the undue eminence to which he had risen, should have been odious to Cecil, Essex, and many of the principal English nobility; neither can it be wonder'd at that the foreign ambassadors who came to treat for the hand of the queen shou'd find the way towards her in the hands of a courtier who, aspiring to be her suitor himself, was known to be adverse to her making a foreign alliance. To undermine his power was the interest of many persons; and it was with this view that the new ambassador, de Dutens, was appointed Elizabeth with a fact which had been hitherto concealed from her, namely Leicester's marriage with Lady Essex. The queen was violently angry when first the disclosure was made, and threatened to commit him to the Tower; she relented however, and again received him at court with undiminished ease. There were other persons to whom, for other reasons, Leicester's marriage was likewise a source of anger. There were suspicions that foul means had been resorted to for its accomplishment. These suspicions, as in the previous cases, could not be proved; for Leicester, having been suddenly overtaken by the court, was suspected by artifice; but considering Leicester's character, they were warranted by the facts. He had become enamoured of Lady Essex during her husband's life-time Lord Essex having died suddenly on the 1st of December, a courtier, it was said, could not be accounted for, and two days after his death Leicester was married to his widow. Accusations for this and other offences were not only made in private, but attacks against him were published in a book entitled 'Leicester's History.' The House of Commons was empowered by the Prince of Parma, that on his return to the Hague the States expressed their dissatisfaction at his tactics, and suspicions of his fidelity. He returned to England in November, 1586. (Barwick's Life.)

It was at the time of his arrival that Elizabeth was anxious to determine what course to pursue with her prisoner Mary, Queen of Scots. When Leicester was consulted, it was his advice that she should be privately put to death. A declaration to that effect was drawn up by the Privy Council, and was entirely in accordance with the wishes of the queen. She had been imprisoned in this country for eight years, and they were afraid that she would escape by the interposition of foreign powers. In 1587 he returned to the Low Countries with a considerable force, both horse and foot, and was received with honours; but before long fresh quarrels arose between him and the States-General; he was again arrested by them, and the queen recalled him after an absence of five months.

In 1588 he was appointed lieutenant-general of the infantry mustered at Tilbury Fort for defence against the Spaniards. This was the last trust conferred upon him. He was seized with illness at his house at Corringby, in Oxfordshire, which he had visited on his road to Kenilworth, and was received on the 4th of September, 1588. His body was removed to Warwick for interment.

Leicester,' says Mr. Hume, 'was proud, insolent, intelli-
gent; ambitious; without honour, without generosity, without humanity. Neither his abilities nor his courage were worthy of the trust that was reposed in them. His behaviour at court was more remarkable for the foibles of his character; he is a rare instance of a favourite maintaining a long and uninterrupted ascendancy until the end of his life.'

After the fashion of the age, he gave lands for charitable endowments, and the hospital of Robert, earl of Leicester, is still possessed of a large benefaction from this benefactor, perhaps only of his vanity and conformity to the practice of his times. (Bish. Brit.; Aikin's Elizabeth; Hume's Hist., &c.)

LEICESTERSHIRE, an English county, bounded on the north by Nottinghamshire, on the north-east by Lincolnshire, on the east by Rutlandshire, on the south-east by Northamptonshire, on the south-west by Warwickshire, and on the north-west by Derbyshire. It is included between 52° 30' 59" N. lat., and between 2° 39' and 1° 37' W. long. The greatest length is, from north by east to south by west, from the junction of the three counties of Nottingham, Leicester, and Lincoln, to the neighbourhood of Lutterworth, 44 miles; its greatest breadth, at right angles to the length, is, from the neighbourhood of Ashby-de-la-Zouch to that of Rockingham, 40 miles. The area is estimated at 806 square miles. The population, by the census of 1821, was 174,571; in 1831 it was 197,063; and in 1841 amounted to 212,667, an increase of 18,562 per cent., and giving 244 inhabitants to a square mile. In size it is the twenty-eighth of the English counties, ranking between Nottinghamshire and Westmoreland; in population, between the twenty-sixth, ranking between Worcestershire and Northamptonshire; in population between the twelfth, ranking between Somersetshire and Yorkshire. Leicester, the county-town, is on the river Soar, about 90 miles in a direct line north-west of London, or 98
miles by the road through St. Albans, Dunstable, Stony Stratford, Northampton, and Market Harborough. A detached portion of Derbyshire near Ashby-de-la-Zouch is surrounded by Charnwood Forest, and on the other side by Warwickshire and Staffordshire.

**Surface and Geological Character.** The surface of Leicestershire consists almost entirely of gently rising hills. The north-eastern part is occupied by the southern extremity of a considerable part of Lincolnshire, and skirts the basin of the Trent and of the Upper Witham. These hills overlock the vale of Belvoir, which is partly in Leicestershire and partly in Nottinghamshire. The south-eastern portion of the formation it is called the Melton Mowbray district. The Monnocks, or flow to Lutterworth, is occupied by the hills which separate the basin of the Soar from that of the Welland. The north-western portion, between Mount Sorrel, Loughborough, Measham, Belper, and Darley, constitutes the district, which, though now bare of wood, retains its ancient designation of Charnwood Forest. This district is occupied by a group of hills of incomparable elevation, but of a rugged character, with distinct, sharp prominences. Bardon Hill, between Leicester and Ashby, is the most elevated point of the group, and commands a greater extent of landscape than any other point in the island. In one direction Lincoln Cathedral, distant sixty miles, forms a good object of view; with a good glass, the Dunstable Hills, distant nearly eighty miles, may be seen. The Malvern Hills in Worcestershire, the Wrekin in Shropshire, and even some eminences in North and South Staffordshire, are visible. The Derwent, rising to the highest point of the Peak, are also visible. Right lines described from the extremities of the view would include nearly one-fourth part of England and Wales. The height of Bardon Hill is 833 feet above the level of the sea.

Some portions of the east side of Leicestershire are occupied by the formations which constitute the third or lowest system of soils. The great oolite extends over the summit of the sandy strata of Leicester and Rutland. From beneath the great oolite the beds which intervene between it and the lias crop out: they skirt the vale of Belvoir, and occupy the border of the county toward Rutlandshire. The lias occupies the rest of the eastern side of the county, skirting the valley of the Soar at the distance of two to three miles eastward from that river. The rest of the county, with the exception of Charnwood Forest, the coal-fields near Ashby-de-la-Zouch, and some isolated hills of mountain limestone to the north, are occupied by the newer red or yellowish sandstone. The Ashby coal-fields lie one to the north-east, the other to the south-west of the town, and extend into Derbyshire. The south-western field is of an elongated figure, extending for ten miles. The strata dip in different directions. More than twenty coal-works have been opened in this field, the deepest of which is sunk 738 feet. One of the coal-beds has a thickness of 17 to 21 feet. The other coal-field is also oblong, and extends in the same direction as that mentioned; its length is about six or seven miles. The isolated beds of mountain limestone are quarried at the village of Ogathorpe near Ashby, at a spot near the road from Ashby to Loughborough, and in other places. Charnwood Forest is included within the county, but its borders are not well defined. It belongs to the counties of Leicestershire and Rutland. It forms a crescent, the line joining the extremities of which runs north and south, from the heads of the river to its junction with the Trent below Kegworth. In the lower part of its course the Soar forms the boundary between Nottinghamshire and Leicestershire; the upper part belongs wholly to Leicestershire. It was antiently called Leire, from which the town and county of Leicester derive their name. This river has a gentle current; it is navigable for about twenty miles from the Trent to the neighbourhood of Loughborough; a canal continues the navigation up to that town. The length of the Soar is nearly forty miles.

The Wreak is a tributary of the Soar. It is reputed to rise at Ab Kettleby, near Melton Mowbray; but the true head is near Oakham in Rutlandshire, from whence it flows in a winding channel to Melton, below which it receives the short stream from Ab Kettleby; before this junction it is called the River Shepshed. From the junction it is called the Soar near Mount Sorrel, after a course of about twenty-five miles. Its channel, so far as it is navigable, forms part of the Leicestershire and Melton Mowbray Navigation.

The Anker, which is navigable for two or three miles at Atherstone in Warwickshire, joins the Tame, a feeder of the Trent, at Tamworth.

The Sence rises in Charnwood Forest, and flows south-west fourteen miles into the Anker near Atherstone.

The Mease, a feeder of the Trent, which rises just within the border of Derbyshire, has a small part of its course in this county; it flows by Ashby, and in two places separates Leicestershire from the detached part of Derbyshire.

The Devon, which rises in the Forest, has its source in Croxton Park in this county: the Warlaby, or Smite, which waters the vale of Belvoir, rises just within the county, near Nether Broughton. These are all the streams belonging to the system of the Trent which claim a Leicestershire designation.

The Avon, a tributary of the Severn, forms the boundary of the county for seven or eight miles on the southern side, separating it from Northamptonshire. The Swift, a small stream which flows by Lutterworth, falls into it.

The Welland, which separates Northamptonshire, forms, for sixteen or eighteen miles, the boundary between that county and Leicestershire. A small feeder of the Welland divides, for about seven miles, the counties of Leicestershire and Rutland.

Leicestershire has several canals. The Leicester Navigation consists partly of a canal, and partly of the river Soar made navigable. It extends from Loughborough (where it is connected with the canal already mentioned from the navigable part of the Soar to the town of the county of Leicester. Its length is about eleven miles; the rise in that distance is forty-five feet. It affords a conveyance for the limestone and granite (so called) of the neighbourhood.

The Leicestershire and Melton Mowbray Navigation, at the junction of the river Wreak with the Leicester Navigation, and is carried along the channel of the Wreak and Eye, which are thus made navigable to Melton. The length of this navigation is about eleven miles.

The Northamptonshire Union Canal extends from the Leicester Navigation at Leicester, to Foxton near Market Harborough, with a cut from Foxton to Harborough. It is carried for the first two or three miles along the bed of the Soar. Its whole length is about seventeen miles: or, including the branch to Harborough, twenty-one miles. At Sadddington there is a tunnel half a mile long, through which the canal passes. The rise in the canal is about one hundred and twenty feet from Leicester to the tunnel at Sadddington.

The Grand Union Canal forms a communication between the Grand Junction Canal, at Long Buckby in Northamptonshire, and the Leicestershire and Northamptonshire Union Canal at Foxton. Its whole length is nearly forty-five miles, of which about eight are in Leicestershire. In the Leicestershire part there are a tunnel and a short branch canal to Welford in Northamptonshire.

The Oakham Canal runs from Oakham in Rutlandshire; and Melton Mowbray Navigation, for over twenty miles, of which more than half is in Leicestershire.

The Ashby-de-la-Zouch Canal commences in the Coventry Canal, about three miles from Nuneaton in Warwickshire, and runs to the county of Leicestershire. Its whole length is above twenty-six miles, of which twenty-one are in Leicestershire or in the detached portion of Derbyshire. It is one level throughout. It is principally used for the conveyance of the coal and lime produced in the neighbourhood of Ashby. There are three railways connected with this canal.
at the Ashby end; one from the Ticknall line-works, eight miles and a half, long, carried in one place through a tunnel; a second branchline off from the latter, led to the Ticknall line-work, four miles, a quarter long, with two short branches; and a third from a colliery near Moira, to the canal, half a mile long.

There is a railway fifteen miles and three-quarters long from Leicester to Ashby-de-la-Zouch, which branches off from the London and Birmingham road at Rugby in Warwickshire, about eighty miles from London, and proceeds nearly due north to Leicester, a distance of twenty miles, leaving Lutterworth to the right on the north side of the line; from Leicester it continues along the valley of the Soar by Loughborough into Nottinghamshire, in which county it crosses the Trent near its confluence with the Soar, and then by two arms runs to Nottingham and Derby. The length from Rugby to Nottingham is forty-seven miles and a quarter; from Rugby to Derby above forty-nine miles; from Nottingham to Derby the distance is fifteen miles and a quarter.

The principal coach roads through the county are as follows:—The Chester and Liverpool mail-road enters the county from Northamptonshire, near the village of north Kilworth, and runs through Lutterworth and Hinckley to the neighbourhood of Atherstone, where it enters Warwickshire. The road from Hull near Grimsby, in Yorkshire, runs through Melton Mowbray into Nottinghamshire. The Halifax mail-road enters the county near Northamptonshire, and passes by Market Harborough, Leicester, and Loughborough, into Nottinghamshire. The Portland, Carlisle, and Manchester mail-road coincides with the Halifax road as far as Loughborough, from which town it runs by Kegworth to Derby. Roads lead from Leicester by Melton Mowbray to Grantham; by Bingham in Nottinghamshire to Newark; by Beverley-de-la-Zouch in Rutland; from Ashby-de-la-Zouch to Hinckley; to Lutterworth; and to Uppingham in the adjoining county of Rutland.

Agriculture.—The climate of Leicestershire is mild and genial, without being so moist as in those counties which lie nearer the Atlantic. There are few high hills to intercept the clouds. The soil is loamy, without the extremes of stiff clay, loose sand, or chalk. It varies in fertility according to its texture, depth, and freedom from superfluous moisture. The most fertile soils are almost invariably kept in grass. The land in this county is divided into large and thinner soils only, which are not so well adapted for grass land, being kept in arable cultivation. Out of above 500,000 acres of surface, fully one half is in permanent grass. The quantity of hay and wool which has been pastured has been paid by the landed proprietors who have family seats in this county, and they have in general some portion of their domains in hand. By employing intelligent bailiffs they greatly contribute to the improvement of husbandry. Grazing and breeding cattle and sheep is the chief object of the Leicestershire farmers, and they have succeeded admirably both with oxen and sheep. The success of Mr. Bakewell, of Dishley farm, and some others, has contributed greatly to excite a spirit of emulation in the breeders, and to make them attentive to keep up the good qualities of the breeds, and to prevent their degenerating by injudicious crosses. The arable land has however not been neglected; and the quantity of stock kept, for which artificial food must be provided in winter, can not only supplied by manure to recruit the land, but also maintain the cultivation of turnips, potatoes, cabbages, and green crops more general and extensive than in many other counties, which cannot fail to improve the crops of corn sown after the crop of the land in a previous state.

The plough in common use has two wheels fixed to the end of the beam, which is like that of a common swing plough, the horses drawing the plough by the beam. This is better than the arrangement of carriage of a common wheel, which the beam of the plough is fixed to being fixed. This plough, which is generally used in the midland counties, and is known by the name of the Rutland plough, when properly set requires no one to hold the stilts after it is once entered into the furrow, but will keep its depth and direction, provided the horses keep their proper course. Most of the improved modern instruments, such as scarifiers, spiked rollers, and drills, have been introduced into the larger farms, which are chiefly in the hands of the proprietors. In many parts of the county the occupations are small, not exceeding 100 acres, where the farmer holds the plough himself, and his family does the drudgery. The common practice of crops of the grazer, breeder, or principal farmer is very conventional as follows:—On good friable loams, 1, a green crop to clean the land, turnips, rape, or cabbages; 2, barley, with clover and grass seeds; 3 and 4, clover mown and pastured; 5, common grass, with a little clover, and mown or pastured.

The Stock.—The farms of Leicestershire consist chiefly of small machinery and implements. The bread of crops is generally sown in September, so that it may be only sown every second course, or be mixed with a considerable proportion of rye grass, trefoil, and other grasses; for the clover will fail if it recur too often. On a good heavy loam the following has been observed:—1, bean with grass seeds; 2, wheat; 3, green crops; 4, barley with grass seeds; and 6, grass. This is an excellent rotation, the manure being put on for the beans and green crops.

The natural meadows along the banks of the rivers are considerable, and most of them of excellent quality. At the banks of the Soar, near Leicester, is a considerable tract of excellent meadow land, apparently formed by the deposition of the sediment of that river, which still inundates it occasionally, and keeps up the fertility. The uplands of Wiltshire are very good also, and occasionally. The produce in hay is from one and a half to two tons per acre.

There are considerable dairy-lands in Leicestershire, especially on the borders of Derbyshire; and very good cheese is made in this county. The cheese made in this county is chiefly made in Leicestershire, and has obtained its name from having been first noticed at an inn in Stilton. It is a very rich cheese, in which a great portion of cream is added to milk in the making. It requires great nicety in the management, to bring it to a proper state, and keep a rich mild flavour in it. Every dairy-woman has her own secrets, which she does not readily communicate; and hence attempts to imitate Stilton cheese are seldom successful. The cheese is chiefly made elsewhere by that which goes by the name of Windsor Forest cheese, which is superior to most of the cheese which is sold in Stilton, and is eagerly purchased at two shillings the pound. [CHEESE] In a good dairy, a cow is reckoned to make, on an average, 4 cwt. of cheese in the year, and to require for her keep summer and winter 3 acres of land. Four cows will fatten a pig of 40 lbs. to 12 score, which is an increase of 30 lbs. for each cow, besides the cheese and the calf. This will altogether afford a rent of 30s. to 40s. per acre. The cheese is often sold to be remade for a shilling a stone; the farmer, two eves and their lambs and two wethers, and, with a quarter of an acre of green crops, during the winter also. Thus 80 sheep may be bred and fattened upon 50 acres of land, which is a rent of about 30s. per acre.

A great portion of the low pastures is now improved by draining; some were drained by Elkington himself, and at considerable expense; but the increased value of the land amply repays the outlay. In consequence of the demand for streams to turn mills, wherever there is any fall, the irrigation of meadows is not carried on to the extent it might be. Mr. Bakewell and several other enterprising farmers have however irrigated extensively, and with great advantage.

The principal breed of cattle in Leicestershire is the improved long-horn, which owes its high character to the intelligence, activity, and perseverance of Mr. Bakewell of Dishley farm near Loughborough. [CATTLE.] The sheep, for which this county is also renowned, equally excel in the limited space of a county which is not large, with very long wool, and fatten very readily at an early age. All these qualities render them valuable in good pastures, which they require. [SHEEP.]

In a county of so extensive a state the amusement of fox-hunting is followed with great eagerness; it is expected that many good horses are bred, and the rich pastures favour the rearing of this useful and noble animal. Many well-bred horses are annually sold by the breeders, and realise great prices; but the rising horse in it is not of a very great, and unless carried on extensively, is seldom very profitable. Good useful cart-horses are a safer speculation; they are easily reared, come soon to market, and are least liable to accidents and diseases.

Hogs have been improved in Leicestershire, as well as...
other animals. This has been done chiefly by crossing with foreign breeds, such as the black Neapolitan and the Chinese. The Dishley swine are small boned, compact, and get extremely fat. There are larger breeds, but the middle-sized are on the whole, the most profitable.

The following are the principal fairs in Leicestershire:
- Ashby-de-la-Zouch, Easter Monday, (a show for stallions); Tuesday for horses; Whitsun Tuesday, horses, cows, and sheep; Bolton, Monday after Trinity week; Castle Donington, March 18, Whitsunday, September 29; Halton, Holy Thursday; Hinckley, third Monday after January 6.
- Easter Monday, Monday before Whitsunday, Monday after August 6, October 28; Husband-Bosworth, October 6.
- Old Fairs, March 2, May 12, July 5, October 12, December 8; New Fairs, September 3, November 22; Loughborough, February 14, March 24, 25, Holy Thursday, August 12, September 30, November 13; Lutterworth, February 16, Holy Thursday, April 2, September 16; Market Bosworth, May 5, July 10; Market Harborough, January 6, February 16, April 29, July 31, October 19; Melton Mowbray, Monday and Tuesday after January 17, March 13, May 3, Whit-Monday, August 21, September 12; Waltham-on-the-Whirlpool, September 23.

**Divisions, Towns, &c.**—Leicestershire is divided into six hundreds, as follows:

<table>
<thead>
<tr>
<th>Name</th>
<th>Area</th>
<th>Pop</th>
<th>Situation</th>
<th>Fate</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Goscote</td>
<td>90,320</td>
<td>86,216</td>
<td>N.W. and Central</td>
<td>Town</td>
</tr>
<tr>
<td>East Goscote</td>
<td>79,830</td>
<td>18,770</td>
<td>Central</td>
<td>Town</td>
</tr>
<tr>
<td>Frasemond</td>
<td>87,540</td>
<td>17,197</td>
<td>N.E.</td>
<td>Market</td>
</tr>
<tr>
<td>Garrick</td>
<td>80,740</td>
<td>17,039</td>
<td>S.E.</td>
<td>Market</td>
</tr>
<tr>
<td>Newton</td>
<td>53,980</td>
<td>22,170</td>
<td>W.</td>
<td>Market</td>
</tr>
<tr>
<td>511,340</td>
<td>197,003</td>
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It contains the borough, market, and county town of Leicester; and the towns of Market Bosworth, Market Harborough, Hinckley, Loughborough, Lutterworth, Melton Mowbray, and Mount Sorrel. Of Ashby and Bosworth an account is given elsewhere; of the others an account is subjuncted. [ASHBY-DE-LA-ZOUCH; Hinckley, Loughborough; LEICESTER.]

Leicester is on the right bank of the Soar. It was known to the Romans by the name Ratog, and was then a place of importance. Its name Leicester (supposed to have been Caer Leirin in the time of the Britons, and altered to Caer Leir in the time of Edward I.) appears to have been the seat of a bishop's see transferred hither from Sidnacester. It was taken and many of the inhabitants massacred by Ethelred, king of Northumbria, in 927. It was also taken by the Danes, and was one of the five Danish burhs, or commonwealths, which filled a part with their dependent territories that part of the Danelaw, or Danish portion of the island, which intervened between Northumbria and East Anglia. Being recovered, it was repaired and fortified anew and enlarged by Ethelred, daughter of Alfred, in the time of Edward I. (the elder). After the Conquest, it was added to the royal demesne, and a castle was erected, or rather an older one was enlarged and strengthened, to keep the township. On this see. On this view of the castle, which was occupied by the Grentemainsells, and held by them for Duke Robert of Normandy; it was therefore attacked and reduced to a heap of ruins by William Rufus. In the following reign the castle was repaired; and in the civil wars of Henry 11. was, as well as the Great, burnt by the king's forces from the adherents of his rebellious son. Both town and castle were nearly destroyed. The castle, having been granted to the earls of Lancaster, rose from its ruins; and during the reigns of the Lancastrian princes was greatly a royal residence, and parliament houses were held in it. On the overthrow of that dynasty it went to decay. Charles I.'s time the materials were sold, and there are but few remains of it, except the mount or earthwork of a round form, and the neighborhood of some old buildings called the 'Newark,' or new works, probably to cumul nursish them from the castle or old works.

Leicester had a mint, in which were produced a succession of coins from the time of the Saxon Athelstan to Henry II. There were several religious houses or hospitals, among which the most important was the abbey of St. Mary Præ or De Pratis, founded for Black or Augustinian canons, by Robert Bossu, earl of Leicester, A.D. 1143. Its revenue at the time of its dissolution, in 1538, was 951l. 14s. 5d. clear. Of this great and wealthy establishment, to which, from its being the scene of Cardinal Wolsey's death, considerable interest attaches, little more than a mass of shapeless ruins remains. During the civil wars of Charles I. Leicester, which by the Parliamentarians, was taken by storm by the king, May 31, 1645, but was recovered on the 16th June, in the same year, by the Parliamentarians under Fairfax. The borough of Leicester in its limits comprehended an area of 3960 acres, with a population, in 1831, of 36,904.

The liberties, in which the borough and county magistrates previously exercised conjoint jurisdiction, have been by the Boundary and Municipal Reform Acts incorporated with the borough both for parliamentary and municipal purposes. The borough, thus enlarged, has been divided into seven wards, and has a corporation of fourteen aldermen and forty-two councillors.

The town is irregularly laid out; the principal line of street extends from north to south nearly a mile in length. The houses are for the most part of red brick. There are several churches, of which the most ancient is St. Nicholas, which is partly built of the bricks from an adjacent Roman wall, of which a few remains, both inside and outside, can be seen, and from the resemblance of some arches of the church to those of the wall, it has been supposed that some portions of the same edifice to which the Jewry wall belonged, or an office of about the same date, have been built into the church. The church of St. Mary's and south aisle, has a square western tower between the nave and chancel, and is chiefly of Norman architecture. St. Mary's church is a large building, partly of Norman, partly Early English style, with some inserted portions of later date; it has a western tower surmounted by a lofty and elegant spire built in the last century. The various styles in which this church is built are admirably executed; some of the arrangements are very singular. There are, close to the church, a gateway in the Perpendicular style, leading into an area called the castle yard; and a large room, formerly serving as a court-hall and banquet-room to the earls of Leicester and the dukes of Lancaster, and now used for the assizes and county business. The church of St. Nicholas was partly Early English, and partly of Perpendicular architecture; a tower, the lower part of which is Norman, rises from the centre, surmounted by a crocketed spire, which, as well as the upper part of the tower, was called the 'Old Spires.' The ruins of this church are the largest in Leicester; it was converted into a barrack by the Parliamentarian soldiers during the civil war, and has since been frequently occupied by public meetings. All Saints is a small church; the chancel is of modern erection, but the rest is ancient, and chiefly in the Early English style, with some later insertions. St. Margaret's is a handsome church, partly Early English, with a chancel and a lofty tower of Perpendicular character. There are some portions of good work in the Decorated style. There is a district church in St. Margaret's parish, dedicated to St. George, lately erected in the Perpendicular style.

There are four bridges over the Soar. The guildhall is a commodious building; the borough gaol and house of correction are new buildings, erected on or near the site of the former county gaol, but are insufficient for the proper classification of the prisoners. A new county gaol and house of correction have been built on the south side of the town. Wigston's hospital was an ancient building, with some good Perpendicular work both in stone and wood. There are a theatre, and a range of assembly rooms, which were originally built for an hotel, and have their ceiling and walls richly painted. The New Walk is a promenade on the south-east side of the town, decorated with trees and commanding some pleasant prospects.

The staple manufacture of the town is stockings, which probably employs 3000 persons. Lace making is carried on on the extensive river Trent, which rises in the town. Woollcombing employs nearly 150; dyeing above 200; and several hands are employed in the manufacture of the frames or other machinery required by the stockers-woollers. The
market is on Saturday, and is well supplied. In the market-place, which is too small for the business done, is a building called the Exchange, where the town magistrates hold a weekly meeting and transact business.

There is a house of correction, a workhouse, and a hospital for the aged poor, containing 151 inmates, and the annual income is £192. In the town are three endowed day-schools, with 920 children; one day-school, partly supported by subscription, with 25 children; one endowed grammar-school in Stoke Golding chapelry with 13 children, and twelve other day-schools with 395 children; two boarding and day schools; one endowed grammar-school; and one endowed dame-school in Leicestershire. The school population is 10,000, and an annual income of 6201 £ is derived from parochial rates. The estimated population of the town in 1831 was 10,969.

The town has a large market, which is held yearly; and a late years triennial musical festival has been established.

There are in Leicester six parishes, besides some extra-parochial districts; but the parish of St. Leonard's is united for ecclesiastical purposes with St. Margaret's. The vicarage is in the former, containing the clear yearly value of 40/.

The other parishes are vicarages, the clear yearly values of which are as follows:—All Saints, 148/; St. Margaret, 440/; St. Martin, 140/; St. Mary, 221/; and St. Nicholas, 82/.

The perpetual curacy of the district of the new public school is valued at 100/.

Only All Saints and St. Margaret have glebe-houses. The churches have been noticed already. There are several dissenting meeting-houses, and one chapel for Catholics.

There were in the borough and liberties, in 1833, three infant schools with 477 children, six dame schools with 156 children, two Lancastrian schools with 570 children, a national school with 245 children, two parochial or other free schools with 220 children, an endowed grammar-school with 18 children, two day-schools with 30 children, nine day-schools with 318 children, a boarding and day school with 30 to 40 children, and twenty-four Sunday-schools with 3577 children. Besides these institutions there was the Female Asylum in Newhall, Leicester, and the National Day School for girls between the ages of thirteen and sixteen were held for three years, clothes, maintained, and instructed. Two proprietary grammar-schools, or 'colleges,' have been since established. There are several hospitals, Asylum, especially Trinity, thirty-nine inmates, and Wigston's hospital for twenty-six.

There are also an infirmary or county hospital, and a lunatic asylum.

The assizes and quarter-sessions for the county are held here: it is also the place of election and one of the polling stations for the southern division of the county. Leicester has returned two members to parliament since the time of Edward I. The magistrates of the borough hold quarter-sessions, and have a court of record for the recovery of debts.

Market Harborough appears by the remains of an encaustic and by various antiquities that have been dug up to have been occupied by the Romans. It is in Garret hundred, on the Carlisle mail-road, 834 miles from London, and 144 from Leicester. The town is in the parish of Bowden Magna, which has an area of 3120 acres, with a population in 1831 of 3346, of which the chapel of Market Harborough contained 2272. The town however extends beyond the present chapelry into Bowden Magna and Bowden Parva (the latter in Northamptonshire). It stands on the north bank of the Welland, and consists of one principal street and several smaller ones. In the principal street is a town-hall, built by a former earl of Harborough; the under part is occupied as shops, the upper is used by the county magistrates for their official business. The chapel is large and one of the finest ecclesiastical buildings in the county. It consists of a nave, two aisles, and chancel, with a fine tower and a lofty octagonal spire, crocketted. There are two or three dissenting meeting-houses. The only manufactures carried on is that of carpets. There is a weekly market on Tuesday. The chapelry is of the clear yearly value of 144/., with a glebe-house. There were in the town at the census 1831, eleven dame Schools, one day-school, partly supported by endowment, with 50 children; six other day-schools with 148 children, and four Sunday-schools with 368 children. There is a branch from the Leicestershire and Northamptonshire Union Canal from Foxton to Harborough. Harborough is one of the polling places for the southern division of the county.

Hinckley is in the hundred of Sparkenhoe, and on the Chester and Liverpool mail-road, 994 miles from London and 138 from Leicester. The town was anciently incorporated a borough and corporate in 1364, and is now a market town. The parish extends into Knightlow hundred, Warwickshire, and comprehends 6290 acres, with a population in 1831 of 7159. The township of Hinckley Bond, in which the town stands, contains 3190 acres, and had, in 1831, 6491 inhabitants. The water during the hirsuit is large and ancient; the roof is of beautiful old oak. There are several dissenting meeting-houses. The staple manufacture of the town is that of stockings, chiefly of coarser quality. The quantity of stockings manufactured is probably greater than in any town of the same size in the kingdom. This branch of industry employs 700 hands in the town, and many more in the adjacent villages. The manufacture of linen is a vicarage of the clear yearly value of 338/., with a glebe house. The chaplains of Stoke Golding and Davillington in the parish are annexed to the vicarage. There is a chapel only at Davillington. There were in 1831, 465 children in one grammar-school, partly supported by subscription, and 122 in one dame-school. The estimated population of the town is 113 children. There was also a Catholic college with several students. Hinckley is one of the polling-places for the southern division of the county.

Leicester, the second town in the county in population and importance, is 11 miles from Leicester and 109 from London on the Carlisle and Halifax mail-road. It is in West Goscote hundred. The parish comprehends an area of 5460 acres, and in 1831, 31,772. The estimated population of 10,000 were in the township of Loughborough. This town was of importance in the time of Leland, who says, 'The town of Loughborow is yn largenesse and good building next to Leicester, of all the market towns in Leicestershire, and also the most well paved.' The prosperity of the town has much increased of late years: in 1801 the population of the parish was 4603; in 1811, 5556; and in 1821, 7494. The houses are generally built of brick. The market-place is now open, the old market being now a hospital containing 140 beds. In the Market-place is a handsome building in the Perpendicular style; it has a fine tower which was built about the end of the sixteenth century. There are several dissenting meeting-houses. The chief manufactures of the town are hosiery (especially what is termed 'flye-hosiery'), which is made for persons in the town and neighbourhood; bobbin-net lace, cotton goods, and shoes. The Leicester Navigation and the Loughborough Canal, communicating with the Soar, tend much to the prosperity of the town.

Thursday. The living is a rectory of the clear yearly value of 1840/., with a glebe-house. There were in 1832 in the township of Loughborough one dame-school with 25 children; four endowed day-schools, viz., three for boys, containing respectively 210, 80, and 85 scholarship, and one for girls with 108 scholars; six other day-schools with 141 children; and seven Sunday-schools with 2066 children. The endowed schools have ample funds and the course of education might be much extended. Loughborough is the principal town of the northern division of the county, and a polling-station.

Lutterworth is in the hundred of Gullahaxon, 13 miles from Leicester, and 894 from London on the Chester and Liverpool mail-road. The parish comprehends an area of 389 acres, with a population, in 1831, of 2562. The town consists of one main street and several smaller ones. The church is a large handsome building: the chancel is separated from the nave by a beautiful screen. From the pulpit, which is of fine carved oak, Wickliffe, who held the living of Lutterworth, is said to have addressed his flock.

The chief manufacture of Lutterworth is of coarse hosiery, but it is not extensive. The market is on Thursday. The living is a rectorcy, of the clear yearly value of 585/., with a glebe-house, and in the possession of an incumbent. There are three endowed schools, with 100 boys; two other schools, partly supported by endowments and by subscription, with 10 boys and 32 girls respectively; another school, partly supported by subscription, with 26 boys and 12 girls; another day-school, with 6 children; and four Sunday-schools, with 14 children.

Melton Mowbray is in the hundred of Framland, 15 miles from Leicester, and 103 from London on the Leicestershire mail-road. The town is a market town, and an electoral borough for a large area, containing a population of 3270 souls, with the church, vicarage, and rectory. It is the seat of a bishopric. The town is situated on a hill, and extends for about a mile and a quarter during the season. The town is in a valley, on the mead Eves, or Wreak, and well built. It is watched, lighted, and paved; and the three bridges in or about the town
The church is large, and has a fine tower, partly in the Early English style. There are one or two dissenting meeting-houses. The chief manufacturer is "the bobbin-net lace. The market is on Tuesday; and at every alternate market there is usually a great show of cattle. The living is a vicarage, united with the chapellies of Freoby and Welby (both in the parish), also with the chapellies of Guthlaxton and Spencer, which is buried here, but the value is £405, with a glebe-house. There were, in 1831, in the parish, exclusive of Freoby and Welby, fifteen dame-schools, with 250 children; two free day-schools, supported from "the Town Estate," the upper school having 55 boys, and the lower school a quadrangular building, with 44 children. There were also three dame-schools, with 145 children; and three Sunday-schools, with 537 children.

Mount Sorrel is in the hundred of West Goscote, 7½ miles from Leicester on the road to Loughborough. The chief manufactory is "the bobbin-net lace. The living is a perpetual curacy, of the clear yearly value of 157½, in the gift of the vicar of Barrow. There were, in 1833, three day-schools with 37 children, and two Sunday-schools with 245 children.

Beside these towns there are one or two other places entitled to a brief notice. Billesdon, the market of which, held on Friday, has been discontinued within the present century, is in the hundred of Gartree, about 9 miles from Leicester, on the road to Uppingham. The parish comprises 3,038 acres, and was in 1831, of 908. There are in the parish two chapellies, Godby and Rolleston, included in the foregoing numbers. The church consists of a nave, chancel, and two aisles; it has also three curates, in five benefices, and three clerks. There is a village, consisting of a much smaller extent. There are chapellies at Godby and Rolleston the former is ancient; in the grave-yard of the latter are the remains of a near cross. The living of Billesdon is a vicarage, with the chapellies annexed, of the clear yearly value of 279½, with a glebe-house. Three were in the whole parish, in 1833, three dame-schools, with 54 children; one boarding-school, with 26 children; three day-schools, with 82 scholars; and three Sunday-schools, with 13 scholars. The village of Billesdon is a very fine village, and is about twelve miles from Mount Sorrel, on the opposite bank of the Soar, lower down the stream. The parish, which contains nearly 9000 acres, with a population, in 1831, of about 6000, includes the chapellies of Mount Sorrel, Quornand, and Wothouse. The village of Barrow contains an hospital, or almshouse, for six poor men, and an endowed school of 30 or 40 boys. There are two or three dissenting places of worship. Quornand chapelrey, in Barrow parish, comprehends 1950 acres, with a population, in 1831, of 1724, and is, besides, the stock lace market. The stock lace market is carried on to a considerable extent. The village is on the road between Mount Sorrel and Loughborough. Kegworth is on the road from Loughborough to Derby, in the hundred of Loughborough and Lincolnshire, on the west side of the Soar, and is about 1830 acres, with a population, in 1831, of 1749, exclusive of the chapellie of Isley Walton. There was a market here, which has been discontinued within the present century. There are some dissenting places of worship. The church is a handsome light building, in the form of a cross. The tower is surmounted by a spire. Botetford is on the river Devons, in the vale of Belvoir, in Framland hundred. The parish comprehends 5100 acres, with a population, in 1831, of 1928. The village is on the road from Grantham to Nottingham. There is a church, with a tower and lofty ornamented spire, and contains a number of handsome monuments of the cars of Rutland of the Manners family. Four duked of Rutland are interred in the mortuary chapel, at the seat of the duked of Rutland, is about four miles from Botetford, upon the border of Leicestershire and Lincolnshire. This noble building occupies nearly the summit of a hill, on the southern slope of which are terraces and shrubberies. The burnings of the church, and the purport of its alterations during the present century: in its situation and general appearance it bears some resemblance to Windsor Castle. It contains a very fine collection of paintings. Walton is on the right bank of the Soar, near Mount Sorrel. It has a fine church with a handsome tower, an endowed school, and several dissenting places of worship. Syston is on the road from Leicester to Melton; it has a large church with a square tower. Both these villages are in the hundred of East Goscote, and had a population, in 1831, of 1491 and 1349 respectively. The stock manufacture is carried on in them to a considerable extent. Winesome is in East Goscote hundred, near the border of the county, on the road from Burton to Newark. The population, in 1831, was 1276; the chief manufacturer is ”the Volunteer Woodhouse is in West Goscote hundred, near Mount Sorrel; the population in 1831 was 1926; the inhabitants are engaged in the stock manufacture. Castle Donnington, is in the hundred of Blackwell, in the county of Leicestershire, and is about 5 miles from the road from Ashby-de-la-Zouch to Nottingham. The population of the parish in 1831 was 3182: about 100 of the inhabitants were engaged in manufactures. There are the remains of an old castle, from which the parish gets its name, and noble park and manor house, and the residence of the marquis of Hastings. The house is modern, built of stone round a court-yard; the architecture is Gothic. It contains a valuable collection of paintings. Sheephead, near Ashby-de-la-Zouch, is in the hundred of West Goscote, and has a population of 1813, of 3714. The stock manufacture gives employment to 500 hands. In the middle of the village is a stone cross, consisting of a single shaft, standing on steps. There are several dissenting meeting-houses. At Whitchurch, near Ashby, in West Goscote hundred, there is a church, and a noble park and manor house; the residence of Sir John Odyson, of Bloxby, Cosley, Countessorum, and Whetstone, near Leicester, and in Giltbaxd hundred; at Southfield in the same hundred, near Lutterworth; at Earl Shelton, Bobage, Barwell, and Sapepe, all near Hinckley, in Sparkeuhoe, in the hundred of Sparkeuhoe, at Castle Donnington; and at Waltham Castle, in the hundred of Waltham Castle, are the residences of Sir Charles Aston in West Goscote, and at Enderby and Netherby in the hundred of Sparkeuhoe, all near Leicester, from one hundred to three hundred stocking-weavers are employed. This manufacture, manufacture of the county, and gives employment in all to upwards of ten thousand workmen, more than half of whom are at Leicester or Loughborough, or at other places in West Goscote hundred.

**Divisions for Ecclesiastical and Legal Purposes**—This county is in the diocese of Lincoln and in the ecclesiastical province of Canterbury. It constitutes an archdeaconry, that of Leicester; and is divided into the six rural deaneries of Akeley, Framland, Gartree, Goscote, Giltbaxd, and Sparkeuhoe. It comprises 70,405 acres, and has a population of 366,504. A description of Leicestershire, in the early part of the seventeenth century, 115 rectories, 81 vicarages, and 105 chapels, of which 33 were in ruins. At present, as near as we can collect, there are 211 benefices, viz. 115 rectories, 79 vicarages, 13 chapellies or perpetual curacies, and 52 consolidated tithes. Leicestershire is in the Midland Circuit; the seases and quarter sessions are held at Leicester.

Before the Reform Act, Leicestershire returned four members for the borough of Leicester, and four members for the borough of Loughborough. By that act the county was divided and the number of members increased, each division of the county returning two. The northern division comprehends the hundreds of West Goscote (except the part near the Leicester), Barrow, and Loughborough, and two detached portions of that of Gartree. Loughborough is the place of election, and the polling stations are Loughborough, Melton Mowbray, and Ashby-de-la-Zouch. The southern division comprises the hundreds of Gartree,
Guthlacston, and Sparkenhoe, with the borough and liberties of Leicester, is the chief place of election; and the polling-places are Leicester, Market Harborough, and Hinckley.

History, Antiquities, &c. — Leicestershire was antiently comprehended in the territory of the Coritani; and when the Roman road from Northwich to Lincoln entered the county, it divided the district into two parts. According to some authorities, it was called by the Romans Leutoniacum, but in other instances, it was included in the province of Flavia Caesaria, which comprehended the midland and eastern parts of the island. The Romans established several stations within or near upon the limits of the county; Ratia (Leicester), Lindum (Lincoln), and Rutupia (Rutland), which some fix for the Yorkon, near Caistor. These villages, or in Northampton, near Leicester, where 10,000 acres are enclosed. The stations however only Ratia, being near Rutland, was then any nearer to the road than the others The town of Roman wall-walk was discovered a.d. 1771, about two miles from the town northward, on the side of the Foss-road; it is of great height, and is partly covered with a roughly-hewn inscription, showing that it has been set up in the time of the emperor Hadrian. It was subsequently removed into the town. The portion of Roman wall called the Jewry wall at Leicester is built of alternate courses of ragstone and man-made. The manner is very rough: there are several arches in the wall, turned entirely of tiles. What building it belonged cannot now be satisfactorily ascertained. South of Leicester town are two remarkable parallel embankments called the Dykes; extending about two miles and a half, with five furrows in length, and about fifteen feet in height. They were formerly considered as the limits of a race-course, and as of British origin; but neither of these points is ascertained. There do not appear to be any traces of a fortification. The Wall-walk, however, appears to be a very useful barrier.

The Roman road Watling-Street forms the boundary between this county and Warwickshire from Tringonium, or Catterthorpe, to the neighbourhood of Manduessedum (Mancer, near Atherstone). The Foss-Way, another ancient road, which intersects Watling-Street at Venonae (High Cross), runs in a direct line north-east to Rutupia (Leicester); and from there north-north-east to Verunumetum, near Willoughby, just within the border of Nottinghamshire. The Via Devana enters the county on the south-east, crossing the Welland near Melton, and runs north-west by Ratia (Leicester) and Ashby-de-la-Zouch, to the county of Derbyshire. Some remains of the Via Devana remain near Wallingford, near Ashby, and 600 to the north. Another ancient road, the Salt-Way, is represented in some maps as branching from the Foss-Way near Sexhill, and running toward Grantham. The town of Leicester was included in the kingdom of Mercia. In the year 680, or according to others 737, Leicester was made the seat of a bishopric, transferred thither from Southwell. The diocese of Leicester, we may presume, was nearly coincident with the parliamentary or royal borough of Leicester. Our present diocese includes, in the year 790, according to some, the diocese was united to Lincoln; but others consider that it did not exist above a century from its establishment, being transferred to Dorchester on the Thames, or rather union to the previously existing see of Dorchester.

By the treaty between Alfred and Guthrun the Dane, (a.d. 878 or 880, Leicester was included in the Danish state; and when the territory of Lincoln and Leicester became one of the great Danish burghs. It was recovered by Ethelfleda, governor of Mercia, during the reign of Edward the Elder.

According to Throsby and others, Leicester had been the seat of an earldom under the kings of Mercia. A.D. 716; but the earldom is not mentioned by the Anglo-Saxon Chronicle. Progress of the English Commonwealth, gives to the nobles whom Throsby enumerates as earls of Leicester, the title of earls of Chester and Coventry. At a later period, a.d. 1018-1037, Leicestershire may have been included in the earldom of Northampton and Bedford. Upon the Norman Conquest, Leicestershire was divided among the followers and relatives of the Conqueror. Several of these or their descendants, to secure the territory thus acquired, created earls and other feudal ranks throughout the kingdom. Of Grimsby (near Leicester) the earthworks and a few fragments of the timber remains. There were several monastic establishments in the county, but there are no remains of any of them of any importance. Leicester Abbey had been already mentioned.

The population of the county at the time of the Domes-day Survey has been calculated by Nicholls at 34,000. Upon the accession of William Rufus, A.D. 1187, Leicestershire was ravaged by Hugh Grenimenamell, who supposed the cause of Robert, duke of Normandie. It was on this occasion that Leicester Castle was taken by William Rufus. The county was again the scene of contest in the civil troubles of the reigns of John and Henry III. The castle of Leicester was in the hands of the forces of Richard III, at Bosworth-field in this county, a.d. 1485. [Bosworth.] The civil war of Charles the men of Leicestershire seem generally to have taken the side of the parliament. The royalists, who had occupied Belvoir Castle, defeated a body of parliamentary forces, November 27, 1643, at Melton Mowbray, but in December of the same year the parliamentarians, under Lord Grey and Colonel Temple, gained a very considerable victory at the battle of Hoby, near Belvoir. The royalists seem to have been in considerable strength in the neighbourhood of Melton, where in February, 1644, there was another skirmish. In March, 1644, Colonel Hastings, a royalist, took possession of Hinckley, where he was reinforced by the forces of the earls of Pembroke and Westmorland, and the royalists defeated, by a parliamentary detachment from Leicester. About the same time the royalists were defeated in a skirmish at Loughborough. Ashby and Belvoir appear to have been then both held by the parliamentarians, and the garrisons occupied Leicester, where their directing committee sat: they established several posts, one at Coic Orton, to watch the royalists at Ashby. In February, 1645, two skirmishes were fought, one between Harborough and Leicester, the other near Melton. In the first the royalists had the advantage and occupied Leicester for a night, the second was drawn. In those actions each party lost 300 to 400 men killed and wounded. On the 31st May, the king took Leicester by storm; the garrison consisted of about 400 men in town, 300 in the country, and 800 to 1000 in the walls; they were rescued, but unavailing; some of the women are said to have assisted in the defence of the breach. The besieging army was estimated at 4000. The triumph of the king was great, and the battle of Naseby. The town of Leicester, and Market Harborough, was won by the parliament, a fortnight after the capture of Leicester: this victory was decisive. Leicester was retaken four days after by the parliamentarians. In his subsequent marches the king came to Ashby-de-la-Zouch, on the 1st of October, and was received with great joy. A storm in November, the same year, and the garrison at Ashby surrendered in the February following. [Nicholas's History of Leicestershire; Beauties of England; T. Allen's Chronicles; C. and R. Phillis's Outline of the Geography of England; Priestley's History of Navigation Rivers; Parliamentary Papers.]
## The population of Leicestershire at each of the following periods was as under:

<table>
<thead>
<tr>
<th>Periods</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
<th>Increase per cent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1801</td>
<td>63,943</td>
<td>66,138</td>
<td>130,081</td>
<td></td>
</tr>
<tr>
<td>1811</td>
<td>73,366</td>
<td>77,053</td>
<td>150,419</td>
<td>15.63</td>
</tr>
<tr>
<td>1821</td>
<td>81,369</td>
<td>88,181</td>
<td>169,550</td>
<td>13.05</td>
</tr>
<tr>
<td>1831</td>
<td>98,536</td>
<td>104,427</td>
<td>199,963</td>
<td>12.84</td>
</tr>
</tbody>
</table>

The expenditure for the same purpose in the year ending March, 1837, £55,191. Assuming the population to have increased since 1831 in the same proportion as in the ten preceding years, the above sum gives an average of $\frac{55}{10}$s. 6d. for each inhabitant. All these averages, except the last, are above those for the whole of England and Wales, which for 1837 was 5s. 6d. for each inhabitant.

The sums raised in Leicestershire for poor-rate, county-rate, and other local purposes, in the year ending 20th March, 1835, was £139,303. 5s., and was levied upon the various descriptions of property as follows:

- On land ........................................ £118,330 3s.
- Dwelling-houses ................................ 29,251 7s.
- Mills, factories, &c. ............................. 723 2s.
- Manorial profits, navigation, &c. ............. 638 14s.

**Total**: £139,303 6s.

The amount expended was:

- For the relief of the poor ............... £114,881 16d.
- In suits of law, removal of paupers, &c. £4,912 6d.
- For other purposes ...................... 22,842 12d.

**Total**: £132,636 14d.

In the returns made up for the subsequent years the descriptions of property assessed are not specified. In the three years ending March, 1837, the total money levied was in 1834, £133,812 14s.; 1835, £116,083 11d.; 1836, £97,019 2s.; 1837, £63,767: and the expenditure for each year was as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Income</th>
<th>Total Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1834</td>
<td>£29,172 2s.</td>
<td>£23,876 6d.</td>
</tr>
<tr>
<td>1835</td>
<td>£21,133 2d.</td>
<td>£6,595 1d.</td>
</tr>
<tr>
<td>1836</td>
<td>£21,527 6d.</td>
<td>£5,919 2d.</td>
</tr>
</tbody>
</table>

The saving effected in the whole sum expended in 1837, as compared with that expended in 1834, was therefore about 52 per cent.; and the saving effected, comparing the same periods of time, in the expenditure of the poor, was nearly 43 per cent.

The number of turnpike trusts in Leicestershire, as ascertained in 1835, is 24; the number of miles of road under their charge is 415. The annual income and expenditure in 1835 were as follows:

- Revenue received from tolls: £23,876 6d.
- Parish composition in lieu of statute duty: £2,133 2d.
- Estimated value of statute duty performed: £2,627 3d.
- Revenue from fines: £12 0s.
- Revenue from incidental receipts: £134 19s.
- Amount of money borrowed on the security of the tolls: £400 0s.

**Total Income**: £29,172 2s.

### Occupations

<table>
<thead>
<tr>
<th>Occupation</th>
<th>1834</th>
<th>1835</th>
<th>1836</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual labour</td>
<td>£7,506 18s.</td>
<td>£7,506 18s.</td>
<td>£7,506 18s.</td>
</tr>
<tr>
<td>Team labour and carriage of materials</td>
<td>£1,095 6d.</td>
<td>£1,095 6d.</td>
<td>£1,095 6d.</td>
</tr>
<tr>
<td>Materials for surface repairs</td>
<td>£8,794 18s.</td>
<td>£8,794 18s.</td>
<td>£8,794 18s.</td>
</tr>
<tr>
<td>Land purchases</td>
<td>£239 16s.</td>
<td>£239 16s.</td>
<td>£239 16s.</td>
</tr>
<tr>
<td>Damages done in obtaining materials</td>
<td>£270 18s.</td>
<td>£270 18s.</td>
<td>£270 18s.</td>
</tr>
<tr>
<td>Tradesmen’s bills</td>
<td>£1,029 15s.</td>
<td>£1,029 15s.</td>
<td>£1,029 15s.</td>
</tr>
<tr>
<td>Salary of treasurer</td>
<td>£54 0s.</td>
<td>£54 0s.</td>
<td>£54 0s.</td>
</tr>
<tr>
<td>of clerk</td>
<td>£299 0s.</td>
<td>£299 0s.</td>
<td>£299 0s.</td>
</tr>
<tr>
<td>of surveyor</td>
<td>£1,087 15s.</td>
<td>£1,087 15s.</td>
<td>£1,087 15s.</td>
</tr>
<tr>
<td>Law charges</td>
<td>£874 14s.</td>
<td>£874 14s.</td>
<td>£874 14s.</td>
</tr>
<tr>
<td>Interest of debt</td>
<td>£4,156 5s.</td>
<td>£4,156 5s.</td>
<td>£4,156 5s.</td>
</tr>
<tr>
<td>Improvements</td>
<td>£4,757 9d.</td>
<td>£4,757 9d.</td>
<td>£4,757 9d.</td>
</tr>
<tr>
<td>Debts paid off</td>
<td>£239 16s.</td>
<td>£239 16s.</td>
<td>£239 16s.</td>
</tr>
<tr>
<td>Incidental expenses</td>
<td>£821 10d.</td>
<td>£821 10d.</td>
<td>£821 10d.</td>
</tr>
<tr>
<td>Estimated value of statute duty performed</td>
<td>£2,627 3d.</td>
<td>£2,627 3d.</td>
<td>£2,627 3d.</td>
</tr>
</tbody>
</table>
The county expenditure in 1834, exclusive of that for the relief of the poor, was £15,1817. 9s. 11d., disbursed as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridges, building and repairs, &amp;c.</td>
<td>£531 14 2</td>
</tr>
<tr>
<td>Gaols, houses of correction, and maintaining prisoners, &amp;c.</td>
<td>3,505 11 8</td>
</tr>
<tr>
<td>Shire-halls and courts of justice, building, repairing, &amp;c.</td>
<td>66 10 8</td>
</tr>
<tr>
<td>Prosections</td>
<td>2,312 0 6</td>
</tr>
<tr>
<td>Clerking the peace</td>
<td>253 10 8</td>
</tr>
<tr>
<td>Conveyance of prisoners before trial</td>
<td>335 19 8</td>
</tr>
<tr>
<td>Conveyance of transports</td>
<td>134 7 0</td>
</tr>
<tr>
<td>Vagrants, apprehending and conveying</td>
<td>32 19 7</td>
</tr>
<tr>
<td>Constables, high and special</td>
<td>568 6 3</td>
</tr>
<tr>
<td>Coroners</td>
<td>157 0 9</td>
</tr>
<tr>
<td>Debt, payment of, principal and interest</td>
<td>5,441 5 0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>2,022 6 6</td>
</tr>
</tbody>
</table>

The number of persons charged with criminal offences in the three septennial periods ending with 1826, 1827, and 1834, were 944, 1273, and 1667 respectively; making an average of 135 annually in the first period, of 182 in the second period, and of 238 in the third period. The number of persons tried at quarter-sessions in each of the years 1831, 1832, and 1833, in respect of whom any costs were paid out of the county-rate, was 65, 93, and 93 respectively.

Among the persons so charged with offences there were committed for felonies in 1831, 1832, and 1833:

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Felonies</td>
<td>73</td>
</tr>
<tr>
<td>Misdemeanors</td>
<td>21</td>
</tr>
</tbody>
</table>

The total number of committals in each of the same years was 97, 110, and 108 respectively.

The total number of convictions in each of the same years was 1843, 1576, and 1333 respectively.

At the assizes and sessions in 1837 there were 432 persons charged with criminal offences in this county. Of these 31 were charged with offences against the person, 29 of which were for common assaults; 29 persons were charged with offences against property committed with violence, 314 with offences against property committed without violence; 7 for malicious offences against property; 4 for uttering counterfeit coin; 5 for poaching; 6 for taking and destroying fish in enclosed waters; and 36 for riot, &c. Of the whole number committed, 328 were convicted, 71 were acquitted, and against 33 there was no bill found or there was no prosecution. Of the whole number of persons convicted, 17 were sentenced to death, but none were executed; their sentences being commuted to transportation for various periods; 10 were sentenced to transportation for life, and 44 for various periods; 11 were sentenced to imprisonment for 2 years, or not less than 1 year; 24 for 1 year or not less than six months, and 198 for 6 months or under; 24 were whipped, fined, or discharged upon sureties. Of the whole number of offenders, 375 were males and 57 were females; 113 could neither read nor write; 211 could read and write imperfectly; 105 could read and write well; and the degree of instruction of the remaining 3 could not be ascertained.

The number of persons qualified to vote for the county members of Leicester is 8,979, being about 1 in 22 of the whole population, and about 1 in 5 of the male population twenty years of age and upwards, as taken in 1831. The expenses of the last election of county members to parliament were, to the inhabitants of the county, 295l. 5s. 4d., and were paid out of the general county rate.

This county contains 5 savings banks; the number of depositors and amount of deposits on the 20th of November, in each of the following years, were as under:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Depositors</th>
<th>Amount of Deposits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1832</td>
<td>2,714</td>
<td>£479,210</td>
</tr>
<tr>
<td>1833</td>
<td>3,221</td>
<td>£494,968</td>
</tr>
<tr>
<td>1834</td>
<td>3,233</td>
<td>£531,741</td>
</tr>
<tr>
<td>1835</td>
<td>3,356</td>
<td>£499,110</td>
</tr>
<tr>
<td>1836</td>
<td>3,578</td>
<td>£510,692</td>
</tr>
</tbody>
</table>

The various sums placed in the savings banks in 1833, 1835, and 1837, were distributed as under:

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1833</td>
<td>Savings</td>
<td>£479,210</td>
</tr>
<tr>
<td>1835</td>
<td>Savings</td>
<td>£494,968</td>
</tr>
<tr>
<td>1837</td>
<td>Savings</td>
<td>£531,741</td>
</tr>
</tbody>
</table>

The schools established by Dissenters, included in the above statement, are:

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant schools</td>
<td>116</td>
</tr>
<tr>
<td>Daily schools</td>
<td>3</td>
</tr>
<tr>
<td>Sunday schools</td>
<td>210</td>
</tr>
</tbody>
</table>

The schools established since 1818 are:

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant schools</td>
<td>116</td>
</tr>
<tr>
<td>Daily schools</td>
<td>3</td>
</tr>
<tr>
<td>Sunday schools</td>
<td>210</td>
</tr>
</tbody>
</table>

Eighteen boarding-schools are included in the number of daily schools given above. No school in the county of
Leicester appears to be confined to the children of parents of the Established church, or of any other religious denomini
ation; and, in this instance, especially in schools established by dissenters, with whom are here included Wesleyan Methodists, together with schools for children of Roman Catholic parents.

There are lending libraries of books attached to 33 schools in the county.

LEIGHTON, a bishop's see in the archiepiscopal province of Dublin, in Ireland. This diocese comprehends the county of Carlow, and extends into the counties of Wicklow and Kilkenny. The chapter consists of a dean, precentor, chancellor, treasurer, archdeacon, and four prebendaries. In 1792 it was divided into 89 parishes, constituting 39 benefices, and having 38 churches. In 1834 the numbers were—parishes 156, benefices 27, churches 413. It consists of 12,924 persons of Roman Catholic worship. In the latter year the gross population of the diocese was 190,832, of whom there were 20,391 members of the Established Church, 169,392 Roman Catholics, 191 Presbyterians, and 288 other Protestant Dissenters; being in the proportion of somewhat more than eight Roman Catholics to one Protestant. In the same year there were in the diocese 279 daily-schools educating 20,755 young persons, being in the proportion of 1057 per each 1000 inhabitants. This particular account is given which respect Leighlin ranks first among the 32 dioceses of Ireland. Of the above schools, in 1834, 61 were in connection with the National Board of Education.

The founder of this diocese was St. Laserian, who supplied the retaining members of the Synod of Whitefield, or Leighlin, A.D. 630. Prior to that time the church of Leighlin had been ruled by an abbot. It is said, that during Laserian's time he had 1500 monks under his government in this abbey. The names of his successors down to the period of the arrival of the English are not known. The first Protestant bishop was Robert Travers, advanced to the see A.D. 1550, and deprived, on the accession of Queen Mary, soon after. He was succeeded by Thomas Hinegan (or Hinegan), a freedman of the deanery, who was succeeded by Daniel Cavanagh, the second bishop of the Reformed faith. The bishoprics of Leighlin and Ferns became united A.D. 1600, in the person of Dr. Robert Grave, which union still subsists. The lands of the see comprise 12,924 statute acres, producing an annual average income of £667 7s. 6d. The cathedral is the parish church of Leighlin-Bridge. According to the provisions of the 3rd and 4th William IV., c. 37, the see of Ossory, on its falling vacant, becomes united with the see of Ferns and Leighlin (Beaumont's Memoir of a Map of Ireland: Harris's Ware's Bishops of Ireland; Parliamentary Returns, &c.)

LEIGHTON, ROBERT, D.D., archbishop of Glasgow; a native of the city of Glasgow. He was born in 1685. He was of the principal class in the city, but who has secured for himself a reputation by having acted in a manner the most opposite to that by which reputation is most commonly secured. In times of excitement he was the steady advocate of peace and forbearance. One story of him so completely illustrates his character, that, though it has been often told, we must repeat it. A question not unfrequently put to the Scottish clergy at their assemblies was, 'Whether they preached to the times?' When Leighton's turn came, his reply was, 'When all my brethren preach to the times, suffer me to preach about eternity.'

The times spoken of are those of the Commonwealth, or a little before, when he had a church near Edinburgh; but he forewarned the congregation would not be tolerated in a minister, so that he retired into privacy, from whence however he was called to preside over the university of Edinburgh. When Charles II. resolved to make the attempt at introducing Episcopacy into Scotland, Dr. Leighton was made bishop of Dunblane. His conduct was the reverse of that of Dr. Sharpe, who was ostentations in the display of an ecclesiastical rank which was displeasing to a large portion of the Scotch nation. Leighton on the contrary, used the opportunity which was given him, but that he won the affections of even the most rigid Presbyterians. The bishops generally took a different course, and this induced Leighton to offer to resign his bishopric: but the views of the Court changing in respect of the attempt to bring the Scotch nation to accept an Episcopalian church, and it being intended to proceed more in the way of persuasiveness and gentleness, he was induced to accept the archbishopric of Glasgow. Still he found it an unfruitful attempt, and accordingly resigned his archbishopric, and retired to the county of Sussex in England, where he ended his days in 1684. The best edition of his works, with an account of his life, was published in 1808, 6 vols. 8vo.

LEIGHTON Buzzard, a market-town, in the hundred of Mansfield and county of Bedford, is seated on the right bank of the Ouse, 17 miles west-south-west from Bedford, and 38 north-west from London, near the line of the London and Birmingham Railway. The streets are ill-paved and sandy, but lighted with gas, and the waters which derive their chief supply of water from wells. The trade consists in corn and timber: the market-day is Thursday, and the fairs are held in February, April, July, October, and December. The church, in the diocese of Lincoln, is vicarage in the patronage of the prebendary of that see. Its net annual value is £375. The burgh and parish, including the four chapelyries of Billington, Eggesdon, Heath-and-Reach, and Standbridge, contained, in 1831, a population of 2149 persons, that of the burgh alone being 3350. Besides a Lancastrian school for the education of children of both sexes, and supported by voluntary contributions, there are several benevolent institutions and charitable foundations, which is given to one of the wealthiest of the mediatised German houses. The ancient line of princes becoming extinct in 1220, Frederick of Hardenberg, son of Simon, prince of Saxony, purchased the bishopric of Leighton Buzzard, and the Pulford and Leigh charities for affording gratuitous instruction to poor children resident in the same town. (Parliamentary Papers, &c.)

LEININGEN, formerly a county situated between the Lower Palatinate and the Palatinate of Reclain, now forms the county of Leinburg, proprietor of Leinburg, and the Pulford and Leigh charities for affording gratuitous instruction to poor children resident in the same town. (Parliamentary Papers, &c.)

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The Earl of Leinster, who was seated in the reign of Henry VIII., who became King of England, and descends to the present Earl of Leinster, who is seated in the county of Wexford, in the north-east of Ireland.

**Population**

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimated by Dr. Beaumont</th>
<th>Houses</th>
<th>Families</th>
</tr>
</thead>
<tbody>
<tr>
<td>1792</td>
<td>181,948</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1821</td>
<td>278,398</td>
<td>352,320</td>
<td></td>
</tr>
<tr>
<td>1831</td>
<td>292,729</td>
<td>341,314</td>
<td></td>
</tr>
</tbody>
</table>

The population of Leinster in the last year gives 378 inhabitants to the square mile, being a more dense population than in the other provinces.

**Leiocephalus.** [Iguanidae.]

**Leiolema.** [Iguanidae.]

**Leiolepis.** [Iguanidae.]

**Leiosaurus.** [Iguanidae.]

**Leiotrichix.** A genus of birds established by Mr. Swainson, with the following generic character.

**Leiotrichinæ.** Subfamily alluded to under the title Leiotrichix, and thus defined by Mr. Swainson.

**Legs.** Long, robust, stydactyle. Hind toe longer than the outer. Wings short and rounded. Bill strong, the goaves ascending.

**Shamrock and linen.**

There are hundreds of manufacturing circles in Saxony; there are however flourishing manufactures of woolens, cotton, and linen in all the thirty-two towns; but in the villages, which are about 1000 in number, all hands, generally speaking, are required for agriculture. The climate is temperate and healthy.

**Leipzig.** The capital of the circle, and the second city in the kingdom, is situated on the banks of the River Elbe, near the mouth of the River Smitt, and is 1° 20' 10" N. lat. and in 12° 27' V. E. long., in an extensive plain watered by the Pleisse, into which the Which Elster, in several arms, the Parde, and the Luppe flow. The swamps that formerly existed in this plain having been filled and drained, it is now extremely fertile and healthy, and covered with flourishing villages.

The town, including the four suburbs, is a near a mile in length from north to south, parallel to the course of the Pleisse, and three-quarters of a mile in breadth. It contains an area of 301,251 acres, of which 877 are within the walls, and 47,514 inhabitants (1837). It was formerly well fortified, but the barracks have been converted into public walks, and partly laid out as gardens. The only remaining part of the fortifications is the castle, called the Plessenburg, upon which the observatory is built.

Leipzig is by no means regularly built, and the streets are generally narrow, though well paved and lighted, but it contains many very handsome, numerous elegant public buildings, private houses resembling palaces, and many towns, with fine gardens, in the suburbs. The most remarkable edifices are, St. Thomas's Church; St. Nicholas, a venerable and magnificent building, adorned with paintings by Oeser; St. Paul's, or the University Church; St. John's, in which is the marble monument of Goebbels; the theatre, the town-hall, built in 1899, the cloth-hall, the Plessburg, with the observatory, which is furnished with excellent instruments, and is in 5° 20' 19" N. lat. and 12° 1' 12" E. long. of Ferro, and 1° 43' 22" E. of Paris. The great building of Antonin's House is in the time of the fairs a kind of bazaar, where the finest and most costly articles are exposed for sale. There are numerous excellent schools and academies, and many literary and learned societies, such as the Prince Jabobsch Cowper's for the promotion of science, the Societies of Natural History and Meteorology, that for the National Language and Antiquities, a deaf and dumb institution, an academy of design, painting, and architecture, many museums, several considerable private collections, especially of paintings, the library of the Senate, now consisting of 60,000 volumes and 2000 MSS., with a cabinet of 6000 coins and medals, and admirable establishments for the poor, which are considered to be some of the best in Germany. There are also flourishing manufactories of various kinds. Leipzig, though comparatively small,
has become one of the most important cities in Europe, owing to its university, its fairs, and its book-trade.

The university was founded in 1409, in consequence of the immigration of a great number of students from Prague with their professors, on the invitation of the elector Frederick and his brother William took the universities of Prague and Paris as models. The 4th December, 1409, is considered as the date of the foundation, and the bull of Pope Alexander VI. confirming it is of the same year. The salaries of the professors, &c., laid down by the statutes was originally the interest of 100,000 dollars and some other revenues. During its whole existence of more than four centuries, the university of Leipzig has enjoyed the reputation of being one of the most eminent in Germany. The number of students is between 1100 and 1200, and that of the professors ordinary and extraordinary, lecturers, private teachers, &c., is 120. The organization of the university has been frequently modified, and especially since 1830, when the four nations of which it was composed were abolished, and the general administration of the university placed under the department of ecclesiastical affairs: the property of the university, with the immediate superintendence of the management, was confirmed to it. For the promotion of German booksellers and books, who had organized institutions, some of them founded by bequests and donations, partly designed for the cultivation of learning in general, and partly for particular branches of science. Among them are the philological seminary, an excellent clinical institution, the botanical institute, a chemical laboratory, an ophthalmic institution, a deaf and dumb asylum, a museum of natural history, &c. The library, having been for a long time rather neglected, has now an additional head librarian and a library of technical affairs, and was formed out of the libraries of suppressed monasteries and the gifts of professors, and now consists of 100,000 volumes and above 4000 MSS., and is particularly rich in paliology, medicine, and old divinity. A great ornament of the booksellers' Exchange is the catalogue of the Assembly of the Estates in 1831, in memory of King Frederick Augustus, and finished in 1832. It is a very fine building, after a design of Schinkel, 300 feet in length and three stories in height, and contains a great hall, lecture- rooms, and apartments for the library, the cabinet of philosophical apparatus, and the collections of natural history. The university still retains its reputation for sound learning, and the students, notwithstanding the excitement of recent revolutions, have always been the most industrious students in the world. Leipzig, 1830.)

The origin of Leipzig was the Slavonian village in the angle where the Parde falls into the Pleisse, which is said to have received its name from the lime-trees growing about it. It was a village of war, and in 1288 the King Henry L had founded the castle of Meissen in 928, he seems to have laid the foundations of a castle in the plain of Leipzig; but it is not spoken of as a fortified town, surrounded with walls and a moat, till the twelfth century, under Margrave Otho the Rich, who granted it a licence to hold two fairs, at Easter and Michaelmas. At that time the number of the inhabitants was between 5000 and 6000. Otho's son Dietrich designed to curb the mutinous spirit of the citizens by erecting in 1219 a bridge, of which only the foundations and arch remain, but in a very different form. As Jews are already mentioned at that time among the inhabitants, it may be inferred that there was considerable trade. The first fair at Neuland was proclaimed in 1438, and the three fairs were confirmed by the emperor in 1469. These fairs have laid the foundation of the prosperity and wealth of Leipzig. The converse of merchants from various countries is very great, and the value of the goods sold was estimated a few years ago at upwards of three million gulden; and the number of persons engaged in business done at the fairs is not so great as it has been, which is owing in a great measure to the very rigorous prohibitory system of Russia, which, being extended to the kingdom of Poland and the grand duchy of Lithuania, of which that part of Germany, which now incorporated with the Russian empire, prevents the merchants of those countries from making extensive purchases at Leipzig. What effect the formation of the German Commercial League may have on the trade of Leipzig cannot yet be fully ascertained; but it seems to be now believed that it will be rather favourable than otherwise.

The singular concentration of the German book-trade in Leipzig has been a main cause of the celebrity and wealth of that city. During the first years of the fourteenth century, there were booksellers, who also printers, that settled in Leipzig were Steiger and Boscop, in 1545. The books were sent to Frankfort fair for sale; but subsequently the book fair at Leipzig was instituted, and in 1607 it was attended by nineteen booksellers from different places. The first catalogue appeared in the sixteenth century. The systematic arrangement of the catalogue was changed in process of time for the alphabetical, and in 1756 the size was altered from quarto to octavo. The number of books was gradually increased. It was not till 1816 that above 3000 new works appeared in German. In 1828 there were above 5600; and this year, 1838, about 6000. The German booksellers are either publishers (Verlagshändler) who sell only their own publications, or booksellers who publish nothing themselves (Verlagshändler), but sell only what they purchase of the publishers. Now however those latter are in general publishers also, by which means they are able to make exchanges with other publishers. It is now become the general custom for the publishers to let the retail booksellers have their publications on sale and return for a certain time, at the expiration of which payment is made for what has been sold, and the remainder may be returned. The peculiar feature in German publishers of books is that every year in September the commission at Leipzig, to whom he sends prospectuses and specimens of his new publications, which the commission distributor and makes known. A bookseller out of Leipzig, A, sends his orders, not to the publisher, B, but to his own commission, C, who deals in books at wholesale and retails it to the commission of the publisher, D, and the latter gives the books to C, and keeps the order to send to B.

At the Easter fair booksellers from all Germany, Sweden, Denmark, Poland, the Protestant states (where the German language is spoken), from the Netherlands, France and England, to the number of above 300, meet at Leipzig to settle their accounts, &c.; and this meeting has acquired additional importance by the establishment of a handbook or catalogue, which has been in print ever since; but thither every year amount on an average to 30,000 cwt., the value of which however is probably not more than from 200,000l. to 250,000l. sterling.

Much as Leipzig has suffered at different periods by the mutinous spirit of the citizens, it has always enabled them to recover in a much shorter time than might have been expected. The Thirty Years' War seemed to have wholly ruined it. In September, 1631, the great victory obtained by Gustavus Adolphus over Tilly was fought on its plain; and in 1642 it was besieged by the Swedish General Torsventon, after defeating the Imperial army under the Archduke Leopold William and Piccolomini, who came to its relief. The fearful conflict on the 16th, 17th, and 18th of October, 1631, in which the town was taken by the allied armies under Prince Schwarzenberg, is still fresh in our recollection. The damage done in the environs only was estimated in 2,500,949 dollars (400,000l.), and yet in a few years all trace of the mischief had disappeared. The pursuit and the acquisition of wealth has not obscured the good qualities which Pope Alexander VI. recognised in the inhabitants when he declared them to be polished and well-conducted persons. They have given every encouragement to education and the cultivation of knowledge. Men of genius, such as Gesner, Ernesti, Reuchlin, Ritter, Reimarus, who have been rectors of the schools; and Leibnitz, Thomasius, Fabricius, and Teller were natives of this city. They are great friends to the fine arts, and are especially fond of music and drama. The town has been a seat of the two famous anti-Christian, of which the first appears to have flourished on their stage. They are also extremly charitable, and are ready to relieve by liberal contributions cases of distress, either among themselves or in other parts of Germany.
LEI

(Leonardi's Geschichte und Beschreibung der Kreisstadt Leipzig, Leipzig, 1793; Dold's Versuch einer Geschichte usw., 1813, and Kreitschel, Leipzig and seine Umgebungen, Leipzig, 1828.)

LEITH, a seaport town and contributory parliamentary borough, situated on the banks of the river Leith, at its entrance into the Firth of Forth, about two miles east from the city of Edinburgh, with which it is connected by a broad street called Leith Walk. It is irregularly built and ill-paved, but contains many handsome houses of recent erection. There are several churches and other public buildings, of which it is incumbent to mention the custom-house, mariners' hospital, assembly-rooms, and the elegant bathing establishment at Seafield. A gaol was erected in 1822, at the expense of the corporation of Edinburgh; but in consequence of disputes between that body and the corporation of Leith, no other would be admitted into the building, although the common lock-up house is said, from dampness and other defects, to endanger the lives of the prisoners. The municipal government of the town is conformable to the act 3 and 4 William IV., c. 66 and 77, according to which the governing body consists of a provost, four bailiffs, a treasurer, and ten common-councillors. The principal incorporated trades are the 'Ship-masters,' usually termed the 'Trinity House,' the 'Trafickers,' or 'Mercantile Company,' the 'Fishermen,' and the 'Gimmers,' of which last possesses certain exclusive privileges. The police of the town is under the regulations of a local act of 7 Geo. IV., cap. 112, entitled 'An act to provide for the government of the town and suburbs of Leith, for the further administration of justice, and for the regulation of the police therein;' and the expense of the establishment, together with the expense of lighting and cleansing, is defrayed by an assessment of 1s. 6d. in the pound upon the rent of all lands and houses whose yearly rent is not less than 3l.

In consequence of the close connection which has been established from a remote period between Edinburgh and Leith by means of the charters granted by different monarchs to the former town, the revenues of Leith, including the port dues, and likewise the imposts levied within the burgh, have hitherto (1836) formed part of the revenue of Edinburgh; and the debts, with some trifling exceptions, are placed in the same position. Among the debts for which the corporation of Edinburgh are responsible, the most important are those contracted with the government for the purpose of constructing the Leith Docks, and which, in the year 1835, amounted to 245,992/.

The capital, belonging exclusively to the corporation of Leith, consists of public buildings and debts due from the trustees of the new markets, and was estimated, in 1833, at 582,344, from which had to be deducted engagements amounting to 3618/.

The area of the corporation at the same period was 196,451, and its expenditure 354/.

There are two commodious dry docks for the repairing and building of ships, and two wet docks (one opened in 1806, the other in 1817), each of which is 300 feet wide and between 700 and 800 feet long, and of sufficient depth to admit vessels of from 200 to 250 tons burden. They are surrounded by well-constructed quays, upon which are erected appropriate warehouses for the reception of merchandise. The depth of the harbour during neap-tides is about 10 foot, and during spring-tides about 16 feet. A steam-vessel belonging to the London Shipping Company leaves St. Katharine's wharf, London, for Leith, every Wednesday and Saturday evening. Great complaints have been made in consequence of the corporation of Edinburgh for 'unjustifiably' increasing the rate and number of the port charges, which is said to have been productive of considerable injury to the mercantile community of Leith, many branches of commerce which formerly flourished being transferred in consequence to other ports. The net proceeds of the harbour and dock dues for the year ending Whit-Sunday, 1833, were 12,217/., out of which the corporation of Edinburgh paid to government 10,350/ on account of the dock fund.

The borough, in union with Portobello and Musselburgh, returns one member to parliament. It comprises the parishes of North and South Leith, whose population, in 1801, was 9215 and 18349 respectively. The number of the latter parish had decreased during the preceding years, in consequence of many of the inhabitants having removed from want of employment.

At the time of the foundation of the High School of Leith (the date of which does not appear) the endowments of the church were insufficient to liquidate the salaries of the teachers. In that year however the late Dr. Andrew Bell, by deed, appointed the magistrates and heads of the corporation of Leith, as a trustees for the purpose of purchasing a suitable site for the establishment of a public school, and of afterwards building and equipping a school-house, and raising 4895l. bank annuities, to be appropriated in the foundation of schools on the Madras system; and since then, although no new school has been established, two teachers, upon the above system, have been appointed to the High School by the corporation, by the courtesy of the trustees.

The administration of the Bell trust funds is described as having been in several respects improvident and censurable. The management of the other affairs of the High School is confided to the Kirk Session and to the commissioners under whose local act before cited of 1817 was passed. Between the years preceding 1836 the number of pupils varied from 160 to 250. There are six classes, namely, two for the classics, one for the mathematicies, one for writing and arithmetic, and two for English. The fees for the first two are 15d. per quarter, and for the other four 7d. per quarter.

For more particular information as to the High School, the state of the harbour, and the connection between the city of Edinburgh and burgh of Leith, see the Commissioners' Report relating to the corporation of the city and burgh of Leith (1836), from which this article is principally taken.

LEITMERITZ, one of the sixteen circles of the kingdom of Bohemia. It is bounded on the east by the circle of Karlsbad, on the north by that of Olmütz, on the west by that of Breslau, and on the south by that of Leisnig, and the area is 1431 square miles, and the population 345,400, who are mostly Germans. It contains 30 large towns and 967 villages. The greater part of this circle is high mountain land. On the north-west is the Erzgebirge and on the north-east the ridge of the Sudetes, and in the middle, between the Eger and Bela, a part of the Bohemian central chain. Some parts are mountainous and sterile, while others are romantically beautiful, with extensive valleys, which are among the most fertile parts of Bohemia. Within this circle is called the Bohemian Paradise, and the granary of Saxony. It produces in abundance corn, flax, hops, fruits, lime, tin, precious stones, especially garnets, coal, in the higher parts timber, and contains many stone-quaries. It possesses a good breed of cattle; and there are manufactories of woollen, cotton, and linen. The Elbe, flowing northwards, traverses the whole length of the circle. The other chief rivers are the Eger, the Bela, and the Potzern. The town of Toplitz, with its celebrated mineral springs, is in this circle.

TOPLITZ.

LEITMERITZ, the capital of the above circle, is situated in 50° 30' N. lat. and 14° 5' E. long., on the Elbe, which is a large river, flows over which there is a bridge of 482 feet in length. It is surrounded with walls and a moat. It has a very fine cathedral, dedicated to St. Stephen, and eleven churches, the principal of which is All Saints, an episcopal palace, a handsome townhall, a gymnasium, a theological seminary, &c. The inhabitants, 4900 in number, have a few inconsiderable manufactures, and chiefly subsist by a profitable fishery of sturgeon, shad, and salmon, and the cultivation of their corn fields, orchards, and vineyards.

HAUSEL, Geography; Blumenbach, Österreichische Monarchie: Österreichische National Enzyklopädie.)

LEITRIM, a maritime county of the province of Connaught in Ireland, bounded on the north by the bay of Donegal and by Donegal county, on the east by the county of Fermanagh, on the south-west by the county of Longford, and on the south-west and west by the counties of Roscommon and Sligo, from the former of which it is separated by the Shannon River. According to the map of Ireland published under the superintendence of the Society for the Diffusion of Useful Knowledge it lies between 53° 47' and 54° 37' N. lat., and between 7° 33' and 8° 25' W. long.; and according to the Ordnance Survey of Ireland, extends from lat. 53° 42' 34" N. to lat. 54° 2' 9" N. and from long. 7° 31' 54" W. to long. 8° 1' 52" W. The area of the county is 4 statute miles, varying in breadth from 5½ to 21. In the latter map the area is given as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Area in Acres</th>
<th>Description</th>
<th>Area in Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>386,614</td>
<td>Water</td>
<td>23,747</td>
</tr>
<tr>
<td>Total</td>
<td>392,362</td>
<td></td>
<td>23,747</td>
</tr>
</tbody>
</table>

(From Hauser's Geography.)
The outline of Leitrim is very irregular, being contracted in the centre to little more than the breadth of Loch Allen, and extending to the underkenky group of lakes in two principal divisions. The district lying south and east of Loch Allen is an irregular parallelogram of about 18 miles by 20, the western and south-western sides of which are mountainous, while the north-eastern and south-eastern sides by the boundaries of the counties of Cavan and Longford respectively. The southern portion of this district, abutting on the counties of Longford and Roscommon, is to a considerable extent traversed by the river which in 1377 had its source in the townland of Mullagh, rising in a direction about 10° west of north and east of south, which is consequently the general direction of all the streams and roads by which the intermediate divisions are entered or left. The larger part of the smaller lakes abounding in this part of Leitrim are of conformable outline. Of these the principal is Rinn loch, about two miles in length by half a mile in breadth, formed by an expansion of the Rinn river, which runs southward out of Leitrim through the north-western extremity of Longford to the Shannon. The lake which brings down the waters of several small lakes situated between the Rinn and the Shannon, joins the latter river at the southern extremity of Leitrim. The rough country above mentioned lies extremity of Carrigallen, and contains some patches of excellent arable land, but is in general more adapted for grazing. The surface is more irregular than is generally the case in other divisions of the western county, in consequence of the great number of clay and gravel ridges scattered over it. The general direction of these ridges conforms to that of the heights farther south, but they are of greater extent and regularity. The principal elevations in this part of the county are Sheemore and Sheeberg, two hills of moderate elevation rising from the eastern bank of the Shannon. The main drainage of the limestone district is southward and westward to the Shannon, but several considerable streams in the north-eastern division of the county run eastward to the lakes on the border of Cavan. Of the latter the principal is the river Dale, which runs into Garadice lake, and thence to Lough Erne. A cluster of lakes, of which the largest are called Lough Scur and St. John's Lough, lie to the north of this level district, and there are upwards of fifty other lakes, varying in size from a quarter of a mile to a mile in length, scattered throughout the same portion of the county. Within a mile of Garadice lake between the borders of the plain, the interior being comparatively thinly inhabited. They are, on the western side, Drumshanbo, at the southern extremity of Loch Allen; Leitrim, a village, four miles farther down the Shannon; Carrick-on-Shannon, the county town, three miles south of Leitrim, situated at the point where the Shannon changes its south- ern for a south-eastern course; Jamestown, three miles south-east of Carrick-on-Shannon, and Drumshanbo, two miles farther down the river, and the south Shannon of the plain the towns are Mohill, north of Loch Rinn, Cloone, and Carriggallen, near the Cavan boundary. On the east is the village of Newton Gorman, and in the north the small town of Ballinamore, and the villages of Castletown and Carrickmore, the two latter situated between Loch Scur and St. John's lough.

That part of the basin of Loch Allen which is included within this county is formed by the group of Slieve-an-terin on the east, by the Lackagh range lying north-west of the county, the Ballyshannon range by a part of the Mountnaslen, and Braulivie ranges on the west. The group of Slieve-an-terin extends from above Drumshanbo into the west part of Cavan, a distance of about twelve miles. Its highest point is on the summit of the mountain Drumsna, which is 1415 feet. The summits of Benbo and Lugnaquillagh, which are the most prominent points within this county in the group farther north, rise to 1707 and 1494 feet respectively. Between the two latter mountains the Yellow River descends by a broad and precipitous channel to Loch Garadice, and the Shannon, which has its source in Cavan, enters the north-ern extremity of Loch Allen through the valley intervening between Lugnaquillagh and the eastern declivities of the Lackagh groups upon the north. The highest summit of the Lackagh range is 1448 feet, and between it and the Shannon, which rises along the western boundary of Loch Allen, a wide valley intervenes watered by the Diffagh. The Diffagh has its chief source in Belacave lake, a sheet of water about two miles in length, which occupies the valley between the two hills of the county of the Bonnet; the water to the north of this point finds their way to the Atlantic either by Sligo or the bay of Dunegal, and those to the south descending to Loch Allen and the Shannon. The heights of Muntkenny, the highest point of the former range, as well as the summit of the latter, forming the northern side of the valley of the Arigna, which river for some distance constitutes the boundary between Leitrim and Roscommon [Roscommon], and runs almost south-western extremity of Loch Allen through a portion of the latter county. Besides the rivers enumerated, Loch Allen receives the waters of numerous minor streams and winter torrents, particularly from the western side of Slieve-an-terin, which is deeply furrowed with their channels. The lake is eight miles in length, and from one to three in breadth, and lies nearly north and south. The Shannon issues in a noble stream from its southern extremity, at which point the scenery is highly picturesque, as well as at the opposite end of the lake, where the island and the branch, which is nearly three miles wide, entering the lake however is gloomy, and from its situation it is exposed to violent squalls, which render navigation dangerous. Its summer level is 139 and its winter level 163 feet above the plain. The Shannon is a noble water, several of its tributaries from Loch Allen to the extremity of the county, has a fall of thirty feet, which is principally distributed over the first seven miles of its course, where the difficulty of navigation has been obviated by the construction of a canal, extending between Dromahair and Bettystown. Another creek, a mile long, avoids the rapids between James town and Drumshanbo. [Shannon]

Beyond the range of Lackagh and the table-land occupied by the lake of that name lies a country formed of four small town- gins, including, with the heights of Lackagh, five distinct valleys, which unite in a pleasantly situated plain occupying nearly the centre of the northern division of the county. The town of Manor Hamilton and the village of Larghanboy are situated close to one another in the common terminus of these valleys, and through these towns the entire inland communication between Leitrim and Sligo and the northern counties is carried on. Of these valleys the best defined are those of the Upper and Lower Bonnet. The Bonnet Valley, a narrow vale, running north and south, and near the western extremity of the county, runs south-east between the heights of Dartry on the north, and a prolongation of the range of Benbulben in Sligo on the south, the town of Manor Hamilton with the village of Larghanboy is situated between them. The Owenmore descending from a valley between the eastern flank of the Dartry mountains and the western declivity of Dooney. After its junction with the Owenmore, the Bonnet changes its direction to south-west, and runs with a wind- ing course by Dromahair into the eastern end of Loch Gill, the waters of which are alternately discharged into the Bay of Sligo. The valley between Dromahair and Manor Ham-ilton is formed by the brow of Lackagh on the eastern side, and on the west by the mountain of Bendo, its east-side range. Benbo, though not exceeding 1400 feet in height, from its shape and position has a striking appear- ance. The slopes on each side of the valley are well wooded, and the whole scene is one of considerable beauty. North of the town of Benbo lies the valley of Glenneser watered by the Bifener, which however runs westward by Glenar lake and a wooded defile through the northern part of Sligo to the sea. Glenfarn is another valley terminating in the open country near Bendo. It is broad and lofty, sloping west, in an opposite direction from Glenar, and is watered by a considerable river running eastward into Loch Macnee. The valley is bounded by the northern brow of Lackagh on the south, and by the heights of Dooney on the north. Thus the county of Leitrim is never very far from the sea, and the heights of the county have not more than one-fourth of the northern district unencumbered. Lochs Macnean and Melvin stretch along the north-
eastern boundary of the county, separating it from Fermangh, in which they partly lie. They are respectively 34 and 74 statute miles in length, and are pleasingly diversified with waterfalls. The Kinlough and their waters are discharged into the Bay of Donegal by the Drowes, from which latter the bathing village of Bun-drowes, at its embouchure, takes its name. At the western extremity of Locht Melvin is the village of Kinlough, in an open plain, but on the north side towards the inland part of the coasts, the height between Darty and the pro-
longation of the Benbulben group, forming a continuation of the valley of the Upper Bonnet. The river Duuff, which separates Leitrim from Sligo, runs into the Bay of Donegal, at the western extremity of the coast.

The shore is for the most part a rocky bluff, with a rough stony beach along the foot of it, and is exposed to the whole swell of the Atlantic. A few yaws are kept at Bundrowes; but no attempt is made on any large scale. Bun-drowes has the requisites for constructing a harbour, but the cost would be greater than any contemplated advantage would repay. There are salmon fisheries at the mouths of the Drowes and Duff rivers.

A new road has been lately completed from the sea at Bundrowes, through Glenade to Manor Hamilton, and thence by the west side of Loch Allen to Carrick-on-Shan-
on and Drumans. The other principal roads in the northern district of the county pass through the villages of Drumshanbo from Manor Hamilton. The chief roads in the southern district run east and west, connecting the towns and villages which occupy the northern and southern margins of the open limestone country. A line of railroad has been constructed from the Dublin to Sligo, which would pass through the southern extremity of Leitrim, but it has not been recommended by the Railway Commissioners for Ire-
land. The Shannon is crossed by seven bridges within the limits of the county.

Climate.—The climate is raw and damp, particularly in the northern parts of the county, owing to the great extent of moory ground and the vicinity of the Atlantic. In the sheltered valleys, however, particularly in the vicinity of Manor Hamilton, the soil is very fertile and the soil, vegetation is as luxuriant as in most parts of other counties in the same latitude. The surface of Leitrim was till a comparatively late period well stocked with timber. It is now barren of wood than most of the neighbouring coun-
ties; the only traces of the former forests consisting of some copes in Glencar, and a small quantity of old timber preserved in private demesnes.

Geology.—The varieties of surface in Leitrim indicate the internal structure with peculiar precision. The flat-topped undulating country forming the slopes to the adjacent valleys and the terraces belong to the millstone-grit or Loch Allen coal formation. The undulating open country has the floets-limestone for its substratum, and the rough coarse land, when near the sea. The Loch Allen coal is generally composed of sandstone, conglomerate, and wacke. The rocks of the Loch Allen coal-district are more analogous to the millstone-
grit of the north of England than to coal tracts in general. The series reposes on the splintery limestone which forms the upper member of the carboniferous or floets-limestone field. First in ascending order occur thick beds of yellowish-white quartz sandstone with interposed beds of black slate. The edges of these strata present the appearance of terraces. The sandstone succeeds a massive bed of shale which in some parts of the series attains a thickness of 700 feet. The lower beds of this member consist of thin alternations of black shale with impure dark bluish grey argillaceous lime-
stone, containing many of the fossils of the carboniferous limestone formation. The calcareous beds gradually grow thinner as they ascend, and at length disappear, their places being supplied by layers, and frequently by large flattened spheroids, of argillaceous ironstone. The shale associated with the ironstone contains frequent cavities of marine orga-

There are no great demesnes of the resident nobility in Leitrim, and the mansions of the resident gentry are not so numerous as in any of the adjoining counties. The neigh-

- On each of the ten years preceding 1839,
very poor, and, generally speaking, they are inferior in physical advantage to the peasantry of the midland counties. The wages of agricultural labourers vary from 6d. to 10d. per day for 140 working days in the year. Wages are higher in the northern district than in that south of Loch Allen. Turf fuel is everywhere

Leitrim is divided into the baronies of Rosscosheragh on the north, containing part of the town of Manor Hamilton (population, in 1831, 1348) and the village of Lurganboy (pop. 134); Drumahair, occupying the remainder of the barony, division, containing the villages of Drumsna (pop. 336) and Drumkeerin (pop. 284); Carrigallen on the south-east, containing the towns of Carrigallen (pop. 492), Dallasmore (pop. 312), and the village of Newtownere (pop. 311); Leitrim on the south-west, containing part of the town of Carrick-on-Shannon (total pop. 1870), the towns of Drumshanbo (pop. 479), Drumsna (pop. 427), Jamestown (pop. 311), and the villages of Leitrim (pop. 274) and Cashmoregan (pop. 54); and Mohill on the south, containing the town of Mohill (pop. 1606) and the village of Drumod (pop. 162).

Carrick-on-Shannon, formerly Carrick Drumrusk, is incorporated by charter of the 11th James I., but since the year 1836 the corporation have not exercised any functions. There is a bridge having a good approach over the Shannon, and water communication to Limerick, Dublin, and Loch Allen. It formerly returned two members to the Irish parliament, but was disfranchised at the time of the Union. The town is built on both sides of the river, having a considerable trade. Jamestown, also incorporated by charter of the 19th James I., formerly returned two members to the Irish parliament: it is now disfranchised, and its corporation is extinct. Mohill, Manor Hamilton, and Drumsna are newly built towns; the other places are inclosures.

Leitrim lies partly in the diocese of Ardagh, but chiefly at that of Kilmore. Prior to the Union it returned six members to the Irish parliament. The representation is now limited to two county members. In January, 1836, the constituency consisted of 1491 voters. The assizes for the county are held at Carrick-on-Shannon, where the county gaol and court-house are situated. General quarter-sessions are held at Carrick-on-Shannon, Manor Hamilton, at which latter places are sessions, court-houses, and bridewells. The district lunatic asylum is at Ballinasloe, in the county of Galway. The county infirmary is at Carrick-on-Shannon, and there are dispensaries in all the towns and villages. The constabulary force in 1836 consisted of 5 chief constables, 21 constables, 86 sub-constables, and 3 horse, the total cost of maintaining which force amounted to £633. 12s. 6d., defrayed in nearly equal proportions by government and the county. In 1856 the total number of criminal offenders committed to the county gaol was 327, of whom 282 were males and 45 females. Of these 89 males could read and write at the time of their committal, 25 males and 2 females could read only, 144 males and 30 females could neither read nor write, and of 24 males and 13 females the instruction could not be ascertained. The only barrack for troops in Leitrim is at Carrick-on-Shannon.

The spinning and weaving of linens is the only branch of manufacture carried on with activity. There are four bleach-greens in the county, which annually finish about 32,000 pieces of cloth, chiefly for the English market. The number of weavers in 1831 was 437, of flax-dressers 33, of reed-makers 25, of rafters 24, of turners 10, and of tobacconists 1. A coarse pottery ware is made near Drumhaire, and there is throughout the county a considerable manufacture, for home consumption, of frizees, flannels, and woollen stuffs. The trade of the county, exclusive of the linen business, consists almost wholly in the sale of grain, butter, and live-stock.

**Population.**

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimated by Dr. Beaufort</th>
<th>Under Act of 1813</th>
<th>Under Act 55 Geo. III. c. 120</th>
<th>Under Act 1 Will. IV. c. 19</th>
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</thead>
<tbody>
<tr>
<td>1812</td>
<td>10,026</td>
<td>17,899</td>
<td>21,762</td>
<td>24,200</td>
</tr>
<tr>
<td>1813</td>
<td>10,026</td>
<td>17,899</td>
<td>21,762</td>
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</tr>
<tr>
<td>1821</td>
<td>10,026</td>
<td>17,899</td>
<td>21,762</td>
<td>24,200</td>
</tr>
<tr>
<td>1831</td>
<td>20,937</td>
<td>2,085</td>
<td>2,429</td>
<td>69,451</td>
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</tbody>
</table>

Before the coming of the English, Leitrim formed portion of the territory of the bardic king called Breifne, or Benny O'Rourke, to distinguish it from Benny O'Reilly, the present county of Cavan. It was by carrying off Devorgil, the wife of Tiarman O'Rourke, king of Breifne, that Dermot MacMurrough provoked the exploit which forced him to seek the aid of Henry II. The whole of Benny O'Rourke is said to have been bestowed by King John on de Lacy; the O'Rourkes nevertheless continued to maintain their independence until the reign of Elizabeth, when Leitrim was first reduced to share the fate of a separate county by the Lord Deputy Sussex in 1603, or, according to others, by Sir Henry Sidney in 1565.

During the earlier period of Anglo-Irish history it is said to have formed portion of the county of Roscommon. Brian Boru, the patron saint of the native Irish of the county, resisted the introduction of the English laws; and after many bickerings with Sir Richard Bingham, president of Connaught, broke out into open rebellion in 1588. He was assisted by MacSwiney, and had a body of Munster troops in his pay, with whom he held the castle of Drumsna until compelled to retreat towards Donegal by Sir Richard Bingham and the earl of Clanrickard. Disputes having occurred between him and the leader of the Munster auxilia- ries, whom he took with him on his expeditions, Sir Richard MacSwiney in Donegal. From thence he fled to Scotland, where he was delivered to the English authorities by James VI., and was finally carried to London, and there tried for treason and executed. It is related of him by Lord Chancellor Bacon that he continued richly after his own country fashion. On the breaking out of O'Donnell's rebellion, in 1596, Tieg O'Rourke, the son of Brian, joined the insurgents, but submitted 14th February, 1597. In June of the same year however he resumed arms, and with Maguire defeated Sir Conyers Clifford in a pass of the Carrick Monton, with considerable loss to the English. He finally submitted in 1603, and took out a patent of the residue of his estate, which had been allotted to him on an English tenure. By an inquisition, taken in 1615, the king's title to the greater part of Leitrim was affirmed, and numerous patents were granted to undertakers by a commission appointed for the purpose of disposing of the estates of the crown in Leitrim, Longford, and King's County. On the breaking out of the rebellion of 1641, the native Irish, headed by Sir Owen O'Rourke, seized all the places of strength in the county, with the exception of the castles of Carrickdrumusk and Manor Hamilton, the latter of which had been built a short time before by Sir Frederic Hamilton, one of the former adherents under the name of Leitrim, a castle of Sir Charles Coote's, also held out until 1645, when it was taken by Lord Taaffe. The Roman Catholic prelates and clergy assembled here in 1659; and having nominated agents to treat with foreign powers on their behalf, and to bring about an union with the synod, Angust 12th, by subduing a decree of excommunication against the marquis of Ormond and all his adherents. The confiscations which followed on the termination of these wars included almost all Leitrim, and led to the remainder to return to the native proprietors under former attainers, and may be said to have extinguished the family of O'Rourke. The forfeitures consequent on the war of the revolution of 1688 do not appear to have extended to Leitrim, which, from its remote situation, was little affected by the military operations of that era. In 1798 the county was traversed from north to south by the French under Humbert, who, after taking Castlebar [MAYO] marched northward through the county of Sligo to Droma-
LELAND, or LAYLONE, JOHN, an eminent English antiquary, was born in London, in the beginning of the sixteenth century, and educated at St. Paul’s school under the celebrated William Lilly. He first entered at Christ’s College, Cambridge, where he is said to have been a Fellow, but afterwards removed to Oxford, and passed several years there at Christ’s College, where he considerably increased his store of knowledge not only in Latin and Greek, but in Saxon and Welsh. From hence he went to Paris and learned French, Italian, and Spanish. On his return home he entered into orders, and being esteemed an accomplished scholar, King Henry VIII. made him one of his chaplains; gave him the rectory of Popeling in the marches of Calais in 1530; appointed him his library-keeper; and by a commission dated in 1533 dignified him with the title of his Antiquary. By this commission he was directed to make several inquiries, and to peruse the libraries of all cathedrals, abbeys, colleges, and other places where records and the secrets of antiquity were deposited; a stipend was allotted to him; and he was to have compensation for the charge of his living. He spent six or seven years in travelling through England and Wales, collecting materials for the history and antiques of the nation; and noticed in his journey not only the more important manuscripts which he met with, but all the localities and local antiquities of the country of what ever description, the rivers, forests, chase, woods, cities, castles, manor-houses, monasteries, colleges, and everything that seemed memorable. In 1542 Henry VIII. presented him to the rectory of Hassel in Oxfordshire, and the year following to a canonry of King’s College, now Christ Church, Oxford. In 1545, upon the surrender of that college to the king, he lost his canonry, but seems to have been compensated for it in the prebend of East and West Winch outside the cathedral of Sarum. In that same year, having digested into four books that part of his collections which contains an account of the illustrious writers in the realm, with their lives and monuments of literature, he presented it to his Majesty, under the title of ‘A New Year’s Gift,’ with a scheme of which he intended to do further, viz. the general history and topography of England and Wales. For the purpose of digesting his collections he retired to a house of his own in the parish of St. Michael-le-Querne in London. In 1546, by royal patent dated 28th of May, and the attention of the Court, according to Bale, became slackened toward his labours. Whether this was really the cause of the disorder by which he became afflicted is matter of doubt, but within a year or two he became insane; and his distemper being made known to King Edward VI., his Majesty by letter patent, dated March 5th, 1550, granted the custody of him, but the name of John Layland the younger, to John Layland the elder, ‘with all his lands, tenements, rents, &c., in a large and ample manner as the said John the younger, being adjudged to the said King by the said letter patent, dated March 5th, 1550, to be his property without recovery for two years, when he died, April 16th, 1552. He was interred in the church of St. Michael-le-Querne, which then stood at the west end of Cheapside, beside the conduit near Pater-Noster-row.

Leland’s works, upon his death, were committed by King Edward VI. to the custody of Sir John Cheke; but subsequently became dispersed. Sir John Cheke, being obliged to go abroad, left four volumes of Leland’s collections in the hand of Humphrey unde, the which, when he ascended to the throne, the historian of Leicestershire, who, having obtained possession of eight other volumes of Leland’s manuscripts containing his ‘Itinerary,’ deposited the whole, in 1632, in the Bodleian Library at Oxford.

Full of zeal for a sequel of Leland’s works, in his own handwriting, will be found in the Cottonian MS. Julius C. VI. in the British Museum; and it is probable that other libraries contain fragments of his productions. He and Nicholas Udall, between them, prepared the best of English and Latine, which were spoken in the Pagente as Anne Boleyn went to her coronation.

The publications by which Leland is most known are his ‘Commentarii de Scriptoribus Britannicis,’ not very faithful, and in 1616 republished in English as ‘Itinerary, published by Thomas Hearne, 9 vols. Svo., Oxford, 1710-12; reprinted as the third edition in 1770; and De Rebus Britannicis Collectanea,’ ed. Thomas. Hearne, 6 tom. 8vo., Oxon, 1713; 2d. printed London, 1773. (Leland’s ‘Itinerary,’ 1711.) Leland’s ‘Itinerary and Travels’ in England, Ireland, and Wales, 2 vols. 8vo., 1712; Chalmers’s ‘Rogate. Dict., vol. xx.;’ Bliss’s ed. of Wood’s, Athenae Oxoniensis.)

LELAND, JOHN, D.D., born 1601, died 1676, was of a Presbyterian family in Lancashire, but his father removed while he was very young to Dublin. He was designed for the ministry, and early in life he became pastor of a congregation of Presbyterian Dissenters in Dublin, and in that situation he spent the remainder of his life. He was a fellow of Trinity College; a master of the college; and for the first sixteen years (1627-1643) of his residence, was the principal of the college. In 1643, he was appointed librarian to the university of Aberdeen. Dr. Leland’s name would not however have found its way into these columns had he pursued the course of a useful and pious minister only. His claim to notice rests on various works of which he was the author, in the great controversy of the age in which he lived, on the truth and diviné origin of Christianity. His first work, published in 1635, was an answer to Tindal’s ‘Christianity as old as the Creation;’ a second, published in 1637, an answer to the same work, entitled ‘The Moral Philosopher;’ and in 1642 he published an answer to a tract entitled ‘Christianity not founded on Argument.’ In 1673 he published ‘Reflections on several passages of Lord Bolingbroke’s Letters on History and religion, of Christianity and Scripture.’

All these works are esteemed valuable defences of Christianity; but his principal work is entitled ‘A View of the principal Doctical Writers that have appeared in England, in the last and present Century; with Observations upon them.’ This work first appeared in its original form in 1754.

LELAND, THOMAS, born 1722, died 1785, a divine, scholar, and historical writer, was a native of Dublin, but not, we have reason to believe, at all connected with the Presbyterian minister just mentioned. He was educated at Trinity College, Dublin, and became early in life a Fellow of that Society, which placed him in a state of independence, and enabled him to devote himself to the pursuit of knowledge and truth, for which he was remarkable through the whole course of his life.

His principal works are, ‘A Translation of Demosthenes, 1746-1770;’ ‘A History of the Life and Reign of Philip of Macedon, 1758;’ ‘A Dissertation on the Principle of Human Eloquence,’ 1764, one of the many works that arose out of the publication, by Bishop Warburton, of his ‘Divine Legation of Moses;’ ‘A History of Ireland,’ 1773.

Dr. Leland was an admired preacher, and after his death a collection of his sermons, in three volumes, was published.

LELEGES. The history of this people is involved in great obscurity, in consequence of the various and almost contradictory traditions which exist concerning them; as
across which they are on the one hand presented as among the earliest inhabitants of Greece, while on the other they are said to be the same people as the Carians. According to Herodotus, the Carians, who originally inhabited the islands of the Ægean Sea, were known by the name of Ægeans before they emigrated to Asia Minor (v. 171); and according to Pausanias the Leleges were only a part of the Carian nation (vii. 2, § 4). The Leleges appear, from numerous traditions, to have inhabited the islands of the Ægean Sea and the western coasts of Asia Minor before reaching Greece; and so represented as the allies of the Trojans; and their king Altes is said to be the father-in-law of Priam. (Iliad, x. 96; xvi. 86.) They are said to have founded the temple of Hera in Samos (Athenaeus, v. 672, Casaubon); and Strabo informs us that some intercourse existed with the Carians, the whole of Ionia (vii. 331).

On the other hand, in the numerous traditions respecting them in the north of Greece we find no connection between them and the Carians. According to Aristotle (by Strabo, viii. 392), they inhabited parts of Arcadia, Ætolia, Ophiantus Locris, Leucas, and Buotia. In the south of Greece we again meet with the same confusion in the traditions of Megara respecting the Leleges and Car- rians. For instance, in the fourth century B.C. the kings of Megara, and to have been succeeded in the royal power, after the lapse of twelve generations, by Lelex, a foreigner from Egypt. (Paus. i. 39, § 4, § 5.) Pylus, the grandson of this Lelex, is said to have led a colony of Me- garians to Lemnos, or to the eastern islands of Greece. (Paus. iv. 36, § 1.) The Lacedaemonian traditions, on the contrary, represent the Leleges as the original inhabitants of Lacconia. (Paus. iii. 1 § 1.)

It is abundantly proved by numerous traditions on the subject, that the Leleges were in some manner closely connected with the Carians; though it seems improbable that they were, according to Herodotus, the same people. The Carians are universally represented as a people of warm, spirited, and delicate nature; while those of the Leleges are said to be strong, and to have been brought up in the arts of war. The Leleges, and the people of Lemnos, are the only two places which, in Asia Minor, are represented as having been emigrated from Greece. (Paus. i. 39, § 4, § 5.)

LEMAN, a lake, originally Lacus, Lake of Geneva, Grafenee (German), one of the largest lakes in Europe, and second only in size to Lake Baikal in Russia, and to Lake Geneva and Savoy. Its northern or convex bank, which forms an arc of about 53 miles in length, not reckoning P. C. No. 840.
plain. The situation is pleasant, but not suited to a great city, there being no river, and only a small stream, the Peltew, which is dry in summer. The city is 868 feet above the level of the sea. When Lemberg belonged to Poland it was a very ill-built place, consisting chiefly of wooden houses; but it has been extremely improved, and it cannot be compared with the possession of Austria. There are now many handsome buildings, broad straight streets, and lofty houses built of freestone, which, with the cupolas and steeples of the cathedrals and churches, give the city, especially when viewed from the air, an air of grandeur. The city was formerly strongly fortified, and made a successful defence in 1666 against the Russians, and in 1672 against the Turks (to whom it however paid 80,000 dollars to raise the siege). In 1704 Charles XII. of Sweden took it by storm; after which the fortifications were not built up again, and under Joseph II. they were pulled down, and low ramparts erected instead, which are planted with trees and laid out in public walks. The compass of the city is small, and the largest houses are in the four suburbs. There are in Lemberg a handsome cathedral and thirteen other Roman Catholic churches, an Armenian and a Greek cathedral, a Lutheran chapel, 2 synagogues, and 9 (formerly 33) convents, namely, of Catholics, 4 of monks and 3 of nuns, one Armenian, and 1 each of Jews, Greeks, and Turks. Besides the residence of the Roman Catholic, Armenian, and Greek archbishops, of the Lutheran superintendent, and a chief Rabbi, of the Governor-General (the Archduke Ferdinand of Este), and all the chief military and civil authorities of the innen, Lemberg has a university, two gymnasia, a Roman Catholic and a Greek Catholic theological seminary, and numerous schools of various kinds, with many hospitals, infirmaries, and other charitable institutions. The manufactures have become much more extensive and important within the last thirty years than they formerly were. Lemberg is the most important trading town in Galicia after Brody. The commission trade is very extensive, and an immense amount of business is done at the fair, commencing on the 6th January, and in the six weeks beginning on the 14th January, which is called the 'contract time,' when the nobility of Galicia and a vast concourse of strangers, Christians and Jews, resort to this place. The population, without the military and the strangers, was, in 1836, 22,292 according to Mr. Rohrer; (Statistik des Oesterreichischen Kaiserthums), and he thinks that, with the military, the foreign students, and the numerous strangers, it may be estimated at 60,000, of whom above 20,000 are Jews.

LEMO. [LIPPE-DETMOLD.]

LEMA (ἡμία, literally 'a thing taken or assumed'), a preparatory proposition borrowed from another subject, or from another part of the same subject, and introduced at the point at which it becomes indispensable. Thus, if in a treatise on mechanics it becomes necessary to prove certain propositions of geometry, those propositions are lemmas. Many writers use the term as if it applied to any necessary preparatory proposition; thus the seventh of the first book of Euclid is with them a lemma to the eighth. But this destroys the peculiar and antient signification of the term, which it is desirable to retain, or else to avoid the word altogether.

LEMINIUM. [MURINE.]

LEMINIAN EARTH. Occurs in the Isle of Lemnos, whence its name. It is found massive. Fracture earthy. Dull. Has a meagre feel. Soft. Opake. Colour greyish or yellowish white. Fails to pieces when put into water. It was formerly used in medicine under the name of Terra Sigitata.

According to Klaproth it consists of-

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>silica</td>
<td>66·0</td>
</tr>
<tr>
<td>alumina</td>
<td>14·5</td>
</tr>
<tr>
<td>oxide of iron</td>
<td>6·0</td>
</tr>
<tr>
<td>soda</td>
<td>3·5</td>
</tr>
<tr>
<td>water</td>
<td>8·5</td>
</tr>
<tr>
<td>traces of lime, magnesia, and loss</td>
<td>1·5</td>
</tr>
</tbody>
</table>

| Total      | 100·0 |

LEMINSCATA, a curve (first noticed by James Bernoulli) having the form of an 8, but with the upper and lower parts perfectly symmetrical. It is the locus of the point in which the ordinate of the hyperbola meets the perpendicular on it drawn from the centre. If the equation of the hyperbola be \(a^2y^2-b^2x^2=1\), and its polar equation is \(r^2=a^2 \cos \theta\). If the hyperbola be not equilateral, and its major and minor semi-axes be \(a\) and \(b\), the locus above described is still a curve of the same form; and if

\[
\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1
\]

be the equation of the hyperbola, that of the new leminscata is

\[
(x^2/a^2)\cos^2 \theta = 1
\]

A great many different curves might be assigned, having the same form: an instance is \(y^2 = mx^2 - (a-x)^2\).

(Seckow's Examples, &c.; Legendre, Exercices du Calcul Intégral.)

LEMONS, one of the northern islands of the Ægean Sea, situated nearly halfway between Mount Athos and the entrance of the Dardanelles, and about 22 miles southwest of Imbros. It is about 147 square miles, and its population, 90,000, all Greeks, with the exception of the Turkish garrison and governor, who resides in the castle above the head town or village of the island. The modern Greeks call both the island and the town Stamímen. The surface is hilly, but the hills are not very high; the western part of the island is the best, producing all kinds of fruits, and also wine, a local drink, which, when properly prepared, produces wine and corn, hemp and flax, but is deficient in timber trees and in wood for fuel. The principal harbour, called Sant Antonio, in the southwest part of the island, is large and safe, and might be a useful station for a squadron in war. The Russian fleet, in 1770, after burning the Turkish fleet at Tchesmé, sailed to Lemnos, and landed troops on the island to besiege the castle, when Hassan Bey, afterwards known as Capudan Pacha, conceived the bold scheme of driving them out of the island. He mingled the inhabitants, men, women, and children, in boats, landed on the island of Lemnos unperceived by the Russians, surprised their camp, and drove them in confusion to their ships, which immediately weighed anchor and sailed. The king of Greece and his raw volunteers muster of the field.

Lemnos is known, in ancient mythology, as the spot on which Vulcan fell after being hurled down from heaven, and where he established his forge. A volcano which was burning on the island may have afforded ground for the fable. A story is also recorded by Herodotus and some other antient writers, of the women of Lemnos having murdered all the men, except their king Thos, who was concealed by his daughter Hypsipyle. The Pelasgi, being driven out of Achaia, are said to have taken part in the war of Lemnos; and it is also said, that, having stolen some Athenian women, and carried them to the island, the children of these women despised their half-brethren, born of Pelasgian mothers; and in consequence of which, the Pelasgi took the resolution of murdering both the Athenian women and their children. In consequence of these atrocities, Lemnos had a bad name among the antient Greeks. The Athenians, led by Miltiades, took Lemnos after their conquest of the Chersonesus. (Herod., vi. 140.) After this, Lemnos was made a trophy by Pliny (Hist. Nat. xxxvi. 19) as having existed on the island, like those of Egypt and Crete, adorned with 150 columns, and with gates so well poised that a child could throw them open. Pliny says that it was constructed by the wise architects, whose names he mentions, and that remains of it existed in his time. Lemnos had two towns. Haphastea and Myrina, the present castle is supposed to be on the site of the latter.

The term Lemnos [LEMINIAM EARTH] is a kind of earthy substance, which was once, and is still, supposed by Greeks and Turks to have wonderful medicinal properties. It is dug out of a hill in the island, with great ceremony, and at particular times, in presence of the Turk and sultan, or the governor, and the Greek clergy, and is shaped into little balls, stamped with the governor's seal. The governor makes a traffic of it, and sends it to Constantinople and other places. It is also used for tanning leather. (Herod., vi. 137, &c.; Chiosell Gouffier, Voyages en Grèce, etc.)

LEMON. [CITRUS.]

LEMONS, ACID OF. [CITRIC ACID.]

LEMONS, SALT OF. [OXALIC ACID.]

LEMONS,trade of. Lemnos, in his 'Characteres Mammalium,' defines Lémond as the third part of the lemon, thus: "Denticles pròximae inferiores." In the body of this work
Their genera, Lemur, Linn., Lichanotina, Linn. and Tarsius, Geoff., are generally placed together in the same sub-order, Quadrupedoid, by Storr," and Adams, (Singes). This negative character, however, was not so pronounced as to induce those who undertook to collect all those which ought to be together. He goes on to notice that M. Geoffroy has established, in his genus many divisions much better characterized. These animals have all the four thumbs well developed and opposable, and the first hind finger or toe armed with a pointed and raised nail or claw, whilst all the other nails are flat. Their fur is woolly; their teeth begin to exhibit pointed tubercles fitting into each other (engrenant les uns dans les autrs), as in the Insectivora. The following groups are adopted by Cuvier:

1. The Makis, or Makas, properly so called, Lemur.
2. The Indris, Lichanotus, Illiger.
3. The Loris group (Slow Lemurs, Stemps, Illiger).
5. The Tarsius, Tarsius.

Mr. Gray arranges the Lemuridae as the third family (Quadrupedoid) of the order Primates, Linn., and he thus characterizes the family:

Grinders 6-6 above, 5-5 below: nostrils terminal; extremely free; first finger of the hind feet armed with recurved claws.

† Head long; grinders blunt.

1. Lemurina: genus Lemur, Linn. 2. Lichanotina: genera Indris, Lacerp., Lichanotis (Lichanotus), Ill.

† Head round.


Mr. Swanns makes the Lemurida as his third family of Quadrupedoid, with the following characteristics:

Form approaching that of quadrupeds; cutting teeth 4:4 5:5, with the exception of tusks on the upper and lower jaws; teeth generally conical, very small.

The following genera are comprised by the author under this family: Lemur, Linn., Indris, Lacerp., Lichanotis, Ill., Scartes, Sw., Stemps, Ill., Oliotenis, Geoff. Cephalopatous (Tarsius Bancanus, Horst), Tarsius, Storg, Ayles, Hamb, Galeopithecus, Pallos, Cheirogaleus, Geoff.

The author of The Natural History of Monkeys, Lemurs, and Opossums, divides the Mammals with opposable thumbs into three sections, like Storr; and the author's arrangement is almost the same, differing only in the removal of the Mesopithecus to the latter, as Storr calls him, from the second to the third section in consequence of observations made since Storr's time. The author observes that the coincidence is the more remarkable, inasmuch as the arrangement of Storr is perfectly known to him till long after the publication of his own views. [CHEIROPODS, vol. vii.]

The author makes his second section of Cheiropods consist of the Lemurinae, or those which have opposable thumbs on both fore and hind limbs; and he divides the section into two subdivisions; and not classes, as Storr does, comprising (1) the anthropoids, and the second of the Lemuridae (with abnormal teeth). The genera arranged by him under this second subdivision are Lichanotus, Propithecus, Lemur, Oliotenis, Cheirogaleus, Stemps, Tarsus, Tarsius, Cheirogaleus, and Propithecus.

Mr. Gray's subfamily Lemurinae contains the true Lemurs or Macacus.

The genus Lemur properly so called is thus characterized:


Terminated:-Dental formula:- Incisors 14:6; canines 1-1"; molars 5-5 = 32.

M. Geoffroy maintains that the number of incisors in both jaws is equal, coinciding with the number in the Monkeys, the two outermost of the six, which are larger than the rest, being, according to him, the true canines; while the teeth commonly called canines are, in his opinion, only the first series of molars. 'This conjecture,' says Mr. Bennett, 'unequivocally derives considerable strength from the fact that when the animal closes its mouth the supposed canines of the lower jaw pass behind those of the upper, a position directly contrary to that which they uniformly assume in every other animal that is furnished with that kind of teeth.'

Teeth of Lemur, more than one-third larger than nature. (F. Cuvier.)

The muzzle is very pointed, the tail very long, the fur woolly and soft, and there are two pectoral mammae. The structure of the hands and nails is mentioned above. (Cuvier's description of the Makis.)

Geographical Distribution and Habits.—The whole of the genus thus characterized, writes Mr. Bennett, in his 'Tower Menagerie,' 'are natives of Madagascar, and of two or three of the smaller islands in its immediate vicinity. They appear to occupy in that remarkable and very imperfectly known country the place of the Monkeys, none of which have yet been detected within its precincts. They are said to live in numerous troops upon the trees, and to feed upon fruits and insects; but their habits in a state of nature have not yet been observed with sufficient accuracy to enable us to form any clear idea of their mode of existence. In captivity they are particularly tame and good-tempered, fond of being noticed, delighting in motion, and leaping with surprising agility. They are however in some degree nocturnal, and when undisturbed pass a considerable portion of the day in sleep. If alone, they roll themselves up in the form of a ball, and wind their long tail in a very curious manner round their body, apparently for the purpose of keeping themselves warm, for they are naturally chilly, and delight in basking in the rays of the sun, or in crouching as close as possible to the fire. When two of them are confined together, they interlace their limbs and tails after a singular fashion, and, placing their heads in such a position as that each may, if disturbed, see what is going on behind the other's back, feel comfortably asleep.'

There are several species, and all that we have seen, some of them very beautiful, and exhibited in the Zoological Society's Collection at the Regent's Park, have been very mild.
Mr. Bennett characterized generically, at a meeting of the Zoological Society of London (Zool. Proc., 1830-31), a Lemurid species, which he states to be probably the animal noticed and imperfectly represented by Soeman under the name of Potto. Mr. Bennett names the animal \textit{Perodicticus Geoffroy}, and gives as synonyms \textit{Potto}, \textit{Bozma}; \textit{Lemur Potto}, Gmel.; \textit{Nycticebus Potto}, Geoff.; and \textit{Galago Guinenzsis}, Desm. \textit{(Perodicticus).} The same zoologist (Zool. Proc., 1833) called the attention of the Society to a Black Lemur (\textit{Lemur niger}, Geoff.) in the Society’s menagerie, expressing his belief that it was the first individual of the species which had fallen under the observation of zoologists since the days of Edwards, the original describer, who saw and figured one which was living in 1755 in London, and whose description and figure were up to 1833 the only proofs of the existence of such an animal. Mr. Bennett added that the Black Lemur is the type of the \textit{Lemur Macaco}, Linn.; and that the name of \textit{Lemur Macaco} has been applied by modern authors, is given by Linneus as var. d. of that species. Custom having however transferred the specific name to the variety, Mr. Bennett deemed it better to sequence in the ascending order, as he has obtained, leaving to the \textit{Lemur niger}, and to the Black Lemur that of

\begin{verbatim}
Lemur niger. Mr. Bennett also (Ibid., p. 196) characterized a new species as \textit{Lemur rufigenis}.
\end{verbatim}

Those subfamilies and genera which belong to the group in its most extensive sense will be noticed under their proper titles, as far as our limits will permit. The \textit{Nycticebus} of Bennett and \textit{N. macaco} is treated under the titles of \textit{Otothiclus} and \textit{Stenops}. Of \textit{Cheirogaleus} but little is known, and of its dentition, at present, nothing. Mr. Geoffroy characterized the genus from the descriptions of M. and M.S. of Comins, \textit{Famille Character.} — Head round; nose and muzzle short; whiskers long; eyes large and prominent; ears short and oval; tail long, full (tootfeu), cylindrical, and curled (enroule); nails of the thumbs flat, and all the other nails round.

This genus is considered by many to be doubtful, though three species are recorded, which we shall presently mention. Mr. Desmarest only admits them into his ‘Mammalogie’ in a note.

The three species mentioned in Commenson’s manuscript notes are \textit{Cheirogaleus major}, \textit{Cheirogaleus medius}, and \textit{Cheirogaleus minor}, all from Madagascar. Mr. Geoffroy thinks that the species last named is \textit{Gallago Madagascariensis}.

\textbf{LENA, River. [SIBERIA.]} L’ENCLOS, NINON DE, was born in 1616, of a noble though not very rich family of Touraine. Her mother wished to make her a nun, but her father, who was a man of pleasure, directed his daughter’s ideas in a very different course, giving her very loose notions of morality, and preparing her to be, what she became in reality, a devotee to sensual gratification. She lost both her parents at an early age, and finding herself under her own management, with a moderate independence, she fixed her residence at Paris. Being remarkably handsome and graceful, she was courted by most of the noblemen and wits about court, was very indulgent to all whom she liked, and had a numerous and often renewed succession of favourites. She is said to have been perfectly disinterested in her amours, being herself above want, and having neither ambition nor a passion for hoarding money. Such was the tone of morality in France, in that age, that modest women courted her society, which was considered a model of elegance and fashion, and was visited by others, Madame de la Fayette, Madame de Sully, and Madame Sarron, afterwards Madame de Maintenon, often visited her. Christina of Sweden, during her residence in France, was much pleased with her company, and wished to attach her to her little court; but Mademoiselle de l’Enclos preferred her independence. She is said to have retained her attractions to a very advanced age, and to have been the object of a violent attachment at seventy. She was advanced and liberal in her views, and entertained some of her letters to St. Evrémonde, which are found in the works of that author, and have been published separately in the ‘Lettres de Femmes Célèbres,’ edited by L. Collin, 1805, are the only authentic memorials of her pen; other letters, though perhaps more singular, were published by her mother. She died in Paris, in 1706, at ninety years of age.

\textbf{LENNEP, JOHN DANIEL VAN,} was born at Leuwarden, in the province of Friesland in Holland, in November, 1724, and was educated at the university of Franeker. In 1747 he edited a Greek poem by Coluthus, which was favourably received by his learned contemporaries. He was elected in 1752 professor of Latin and Greek at Groningen, and after remaining there fifteen years, was appointed to the Chair of Greek at Heidelberg. He died the 6th of February, 1771, at Aix-la-Chapelle, whither he had gone for the benefit of his health.

Lennep is principally known by his ‘Etymologicum Linguae Graecae,’ which was published after his death, by his pupil Schiele, 2 vols. 8vo, Utrecht, 1790. This was reprinted in one volume in 1898, under the superintendence of Nagel. This work used to be considered by many scholars a standard book on Greek etymology, but since the study of etymology has grown more general than formerly, it has been regarded as a useless book, full of errors and absurdities. The views of Lennep on etymology in general, and especially on that of the Greek language, are given in a treatise of his entitled ‘De Analogia Linguae Graecae,’ published in the ‘Academiae’ of Lennep and Valkenaer, 8vo, Utrecht, 1790.

Lennep was engaged at the time of his death in editing the Epistles of Plutarch, and translating into Latin Beni-
ley's celebrated Dissertations on those Epistles. This work, together with the translation of Bentley, was published in 1777, under the superintendence of Valckenaer, who has given in the preface a brief account of the life and writings of Lennep.

LENS (Latin for 'a small bean'), a name given to a glass, or other transparent medium, ground with two spherical surfaces in such manner as to be generated by the revolution of one or other of the following figures about the axis AB.

(1) is plano-convex; (2) is double-convex; when the radii are equal it is called equi-convex, and when one radius is 6 times the other it is called a crossed lens; (3) is a meniscus; in every such lens the concave side has the larger radius; (4) is plano-concave; (5) is double concave; (6) is concavo-convex.

We shall not here enter upon the laws of optics, but presuming them known, shall collect the principal facts and formulae connected with the passage of a direct pencil of light, that is, of a pencil whose rays are either parallel to the axis, or converge from or diverge to a point in the axis. We shall follow the notation (for the most part) and formula of Mr. Caddington, in his 'Treatise on the Reflexion and Refraction of Light,' Cambridge, 1829, which contains the most complete investigation of the subject which we know of; referring to the work itself for demonstration and extension.

The following figure represents the passage of a pencil of light with parallel rays through a double-convex lens. The rays are not all refracted to a point, but are tangents to a CAUSTIC, which has a cusp at a certain point F, and may be considered with sufficient accuracy as a small portion of a semicircular parabola. If however the aperture of the lens be not a considerable portion of a sphere, which is always the case in practice, the rays which pass near the axis are thrown so thick about the point F, that the effect is an image of the extremely distant point from which the rays come, formed at F. This (for parallel rays) is called the focus of the glass, and its distance from the nearest side of the lens is called the focal distance. The longitudinal aberration of a ray is the distance from the focus at which it passes through the axis, and the latitudinal aberration is the perpendicular distance from the axis at which it passes through a perpendicular drawn through the focus. Thus, in the following figure, P'A is the longitudinal, and FB the latitudinal aberration of the ray PQ.

We shall first state the method of finding the focal length of a given lens. Let μ be the index of refraction, or μ:1 the constant proportion which the sine of the angle of incidence bears to that of refraction (which for plate-glass varies from 1.500 to 1.540; for crown glass, from 1.525 to 1.562; and for flint glass from 1.576 to 1.642); and let R and S be the radii of the two sides of the lens with their signs, while r and s are the numerical values of these radii independently of their signs. Also let every convex surface be considered as having a positive radius, and every concave surface a negative one. Let F be the focal distance with its sign, and f the numerical value of the same, it being agreed that the focal distance shall be positive when parallel rays are made to converge, and negative when they are made to diverge, that is, to proceed as if they came from a point on the same side of the glass as that on which they entered. One formula, upon these suppositions, will embrace all the cases; and that formula is

$$\frac{1}{F} = (\mu - 1) \left( \frac{1}{R} - \frac{1}{S} \right)$$

on the supposition that the central thickness of the lens is inconsiderable. But if it be necessary to take this thickness into account, let it be called t, and let R be the radius of the side at which the light enters: then either find F from

$$\frac{1}{F} = (\mu - 1) \left( \frac{1}{R} + \frac{1}{S} \right) + \frac{(\mu - 1)^2}{R^2} t$$
or correct F, as found from the preceding formula, by subtracting from its algebraical value

$$\frac{(\mu - 1)^2}{R^2} F^* t$$

F being found from the preceding: the result is sufficiently correct.

The focal distance, as determined from the first formula, is the same whether the light enter on one side or the other, but the correction for the thickness depends, as we see, upon the side at which it enters.

The application of these formula to the several cases is as follows:—We write the distinctive adjective of the lens so that the first part of the word shall denote the part at which light first enters; for instance, plano-convex, or convexo-concave, according as the light first meets the plane or convex surface.

(1). **Plano-convex:** R is infinite, S = s:

$$\frac{1}{F} = \frac{1}{s} - \frac{1}{s^*}, \text{ or } f = \frac{1}{s} - \frac{1}{s^*}.$$

(2). **Convexo-plane:** R = r, and S is infinite:

$$\frac{1}{F} = \frac{1}{r} - \frac{1}{s}, \text{ or } f = \frac{1}{r} - \frac{1}{s}.$$

(3). **Double-convex:** R = r, S = s:

$$\frac{1}{F} = (\mu - 1) \left( \frac{1}{r} - \frac{1}{s} \right) + \frac{(\mu - 1)^2}{R^2} t.$$**

(4). **Convexo-concave meniscus:** R = r, S = -s, r < s:

$$\frac{1}{F} = (\mu - 1) \left( \frac{1}{r} - \frac{1}{s} \right) + \frac{(\mu - 1)^2}{R^2} t.$$**

(5). **Concavo-concave meniscus:** R = -r, S = s, r > s:

$$\frac{1}{F} = (\mu - 1) \left( \frac{1}{s} - \frac{1}{r} \right) + \frac{(\mu - 1)^2}{R^2} t.$$**

In all the preceding cases F is positive; or all sharp-edged lenses make parallel rays converge; but in those which follow it will be noted that F is negative, or all flat-edged lenses make parallel rays diverge.

(6). **Plano-concave:** R is infinite, S = s:

$$\frac{1}{F} = - \mu - 1 \cdot \frac{1}{s}, \text{ or } f = \frac{1}{s} - \frac{1}{s^*}.$$

(7). **Concavo-plane:** R = -r, S is infinite:

$$\frac{1}{F} = - \mu - 1 \cdot \frac{1}{s}, \text{ or } f = \frac{1}{s} - \frac{1}{s^*}.$$

(8). **Double-concave:** R = -r, S = -s:

$$\frac{1}{F} = - (\mu - 1) \left( \frac{1}{r} - \frac{1}{s} \right) + \frac{(\mu - 1)^2}{R^2} t.$$**

(9). **Convexo-concave:** R = r, S = -s, r > s:

$$\frac{1}{F} = (\mu - 1) \left( \frac{1}{r} - \frac{1}{s} \right) + \frac{(\mu - 1)^2}{R^2} t.$$**

(10). **Concavo-concave:** R = -r, S = s, r < s:

$$\frac{1}{F} = (\mu - 1) \left( \frac{1}{s} - \frac{1}{r} \right) + \frac{(\mu - 1)^2}{R^2} t.$$**

* These results are only nearly true.
The aberration is least for a given aperture and focal length, when \( x = \frac{5}{7} \), which gives \( S = 6 \) \( F \), requiring a double-convex or double-concave lens, in which the radius of the side on which light enters is one-sixth of the other. The convex lens of this kind is what opticians call the crossed lens. The co-efficient of \( y' \) = \( F \) is \( -\frac{15}{4} \).

The latitudinal aberration at the focus (as determined with the correction for thickness) is \( y K \) + \( F \), or (neglecting the sign)

\[
\frac{1}{8} \frac{3A y^2}{F^2}; \text{ for glass } 7X^2 - 10X + 10 \frac{y^2}{8}
\]

But if we observe the rays in the second figure (and the same may be clearly seen in a beam of sun-light thrown into an otherwise dark room through a convex lens) we shall see that the luminous space is bounded by a surface of revolution which narrows and afterwards spreads again, as in this diagram. The smallest circle (at \( G \)) is called the circle of least aberration, and is determined as follows: Its centre is nearer to the glass than the focus (corrected for the thickness) by three-fourths of the longitudinal aberration of the extreme ray; and its diameter is one half of the lateral aberration of the extreme ray. If then we measure from the corrected focus, we find for the distance of the circle of least aberration (neglecting its sign) from this focus,

\[
\frac{3A y^2}{32 F^2}, \text{ for glass } 7X^2 - 10X + 10 \frac{y^2}{8}
\]

and for the diameter of this circle,

\[
\frac{A y^2}{16 F^2}, \text{ for glass } 7X^2 - 10X + 10 \frac{y^2}{12}
\]

The correction for the thickness, to be subtracted from \( F \) as determined by the first equation of all, is

\[
-\frac{1}{4} \frac{4\mu}{(X + 1)^2} t; \text{ for glass } -\frac{1}{6} (X + 1)^2 t;
\]

which is always algebraically subtractive, whatever the sign of \( F \) may be. The following table exhibits this correction, the distance of the circle of least aberration, and its diameter, for the cases above noted. The description of the lens is in the first column, and \( I \) stands for plane (or plano), \( C \) for concave, and inverted \( C \) for convex. The sign of the surface which the light first meets is placed first. Where a great and small letter meet, the small letter shows the side which has the less curvature, or the larger radius.

<table>
<thead>
<tr>
<th>Lens</th>
<th>( X ) or ( x )</th>
<th>Correction for thickness.</th>
<th>Distance of Circle.</th>
<th>Diameter of Circle.</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \text{Iq and IC} )</td>
<td>( X = -1 )</td>
<td>0</td>
<td>27 ( y^2 )</td>
<td>9 ( y^2 )</td>
</tr>
<tr>
<td>( \text{CI and CI} )</td>
<td>( x = 1 )</td>
<td>2</td>
<td>7 ( y^2 )</td>
<td>7 ( y^2 )</td>
</tr>
<tr>
<td>( \text{Co and Co} )</td>
<td>( x = -x )</td>
<td>( x^2 + \frac{1}{4} t )</td>
<td>8 ( F )</td>
<td>( \alpha^2 )</td>
</tr>
<tr>
<td>( \text{Co and Co} )</td>
<td>( x = -x )</td>
<td>( x^2 + \frac{1}{4} t )</td>
<td>8 ( F )</td>
<td>( \beta^2 )</td>
</tr>
<tr>
<td>( \text{Ce and Ce} )</td>
<td>( x = -x )</td>
<td>( x^2 + \frac{1}{4} t )</td>
<td>8 ( F )</td>
<td>( \beta^2 )</td>
</tr>
<tr>
<td>( \text{Ce and Ce} )</td>
<td>( x = -x )</td>
<td>( x^2 + \frac{1}{4} t )</td>
<td>8 ( F )</td>
<td>( \beta^2 )</td>
</tr>
</tbody>
</table>

We have judged it more useful to collect what we may call the critical formulae, by which the fitness of a lens
for any given purpose may be estimated, than to enter upon explanations of optical principles in an isolated article. We shall now give the formula only, omitting the details of cases, when the pencil of rays is not parallel, but proceeds from a point in the axis.

Let \( U \) be the distance of the entering pencil from the surface whose radius is \( R \), and \( V \) the distance of the focus of the rays on the other side from the surface whose radius is \( S \); \( U \) being negative when the entering pencil is divergent, and \( V \) negative when the emergent pencil is convergent. Let \( F \) be the distance of the uncorrected focus of parallel rays from the surface of emergence, determined as before. Then, if the thickness of the lens be inconsiderable, \( V \) is determined from \( U \) by the equation

\[
\frac{1}{V} + \frac{1}{U} = \frac{1}{F} = (\mu - 1) \left( \frac{1}{R} + \frac{1}{S} \right);
\]

\( V \) representing the solution of this equation, the more correct value, taking the thickness of the lens into account, is

\[
V = \left( \frac{\mu - 1}{R} - \frac{1}{U} \right) \cdot \frac{V^*}{\mu};
\]

Let \( X = \frac{S - R}{S + R}; \ W = \frac{V - U}{V + U}; \)

then the above correction for the thickness is

\[
- \left( \frac{X - W^*}{1 - W} \right) \cdot \frac{\mu + 2}{\mu} \left( \frac{\mu - 1}{\mu} \right) \cdot \frac{X^* + 4 (\mu + 1) WX}{\mu};
\]

and assuming \( A \) to stand for

\[
- \left( \frac{X - W^*}{1 - W} \right) \cdot \frac{\mu + 2}{\mu} \left( \frac{\mu - 1}{\mu} \right) \cdot \frac{X^* + 4 (\mu + 1) WX}{\mu};
\]

the longitudinal aberration is

\[
- \frac{A}{8} \frac{V^*}{F^2} \frac{F}{F} \text{ or } - \frac{A}{2(1 - W)} \cdot \frac{y''}{F};
\]

which must be algebraically applied to the value of \( V \) (corrected for thickness. The lateral aberration is

\[
- \frac{3A}{32} \frac{V^*}{F^2} \cdot \frac{y''}{F} \text{ or } - \frac{3A}{8(1 - W)} \cdot \frac{y''}{F};
\]

and the distance of the least circle of aberration from the corrected focus is

\[
- \frac{A}{16} \frac{V^*}{F} \text{ or } - \frac{A}{8(1 - W)} \cdot \frac{y''}{F};
\]

When two or more lenses are placed close together, in finding the approximate focal distance, uncorrected for the thickness, they may be considered as one lens, whose focal distance has a reciprocal equal to the sum of the reciprocals of the focal distances of the component lenses. Sir J. Herschel has proposed to call the reciprocal of the focal distance the power of a lens; in which case it would be said that the power of a compound lens is equal to the sum of the powers of the simple lenses.

For more complicated cases see the work of Mr. Codington, already cited.

LENS, CRYSTALLINE. [Eye.]

LENS, [EYE.]

LENT (in Latin, Quadragesima), a time of mortification, commemorative of the miraculous fasting of our Saviour in the desert; used as a preparation for Easter. The Saxon term was Lenten, implying Spring, the season when the day increases in length, about the commencement of which this fast usually falls; it is in fact the Spring-Fast.

In the ancient Latin Church Lent consisted only of thirty-six days: the four additional days began in the ninth century.

Some assert that this Fast was first instituted by the Apostle St. Paul, but the opinion of St. Jerome, St. Leo, St. Augustine, and others, Tertullian speaks of it as of long standing in his time; though some writers date it as low as the third century. It was first observed in England by our Saxon ancestors in 640, by order of Eormanberht, King of Kent. (Wheatley On the Common Prayer, 8vo., London, 1741, p. 234; Brady's Clavis Calendaria, i, 209, 216; Brand's Popular Antiquities, vol. i, p. 75.)

LENTICULARIA, a small monopetalous order of exogenous plants, resembling Scrophulariaceae very much in all respects, except that their seeds are arranged upon a free central placenta. Pinguicula and Utricularia are the only genera of this order.

LENTICULINA. [FORAMINIFERIA, vol. x. p. 348.]

LENTO (Ital., slowly), a term in music equivalent to Largo.


When put into water it divides into numerous small translucent bits, which, when touched, fall into grains of great hardness; by heat loses 25 per cent. in weight, and becomes hard enough to scratch glass.

Dr. John's analysis gives—

<table>
<thead>
<tr>
<th>Substance</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica</td>
<td>37 1/2</td>
</tr>
<tr>
<td>Alumina</td>
<td>37</td>
</tr>
<tr>
<td>Water</td>
<td>23</td>
</tr>
<tr>
<td>Alumina</td>
<td>100</td>
</tr>
</tbody>
</table>

It is found at Eifeld in Prussia.

LEO I., Emperor of Constantinople, born in Thrace of obscure parentage, entered the military service, and rose to high rank. At the death of the Emperor Marcianus, A.D. 457, he commanded a body of troops near Suthymi, and was proclaimed emperor by the soldiers, at the insurrection of Aspar, a Gothic chief, who commanded the auxiliaries. The senate of Constantine confirmed the choice, and the patriarch Anatoll crowned him. This is said to have been the first instance of an emperor receiving the crown from the hands of a bishop. Leo followed the measures of Marcianus against the Eutychians, who had been condemned as heretics, and who had recently excited a tumult at Alexandria, had killed the bishop, and placed one Aperius in his stead. Aspar, for a time, screened Aperius; but Leo at last had him exiled, and an orthodox bishop put in his place. The Huns, having entered the province of Dacia, were defeated by the imperial troops, and a son of Attila was killed in the battle. Soon after, Leo, in concert with Anthemius, emperor of the West, prepared a numerous fleet, with a large body of troops on board, for the recovery of Africa, which was occupied by the Vandals. Part of the expedition attacked and took the island of Sardinia; the rest landed in Libya, and took Tripolis and other towns; but the delay and mismanagement of the commander, who was Leo's brother-in-law, gave time to Generio to make his
preparations. Coming out of a harbour of Carthage by night, he was repelled by a foul wind, he set fire to many of the imperial ships, dispersed the rest, and obliged the expedition to leave the coast of Africa.

Leo gave his daughter Ariadne in marriage to Zeno, an Isaurian, whom he made patrician and captain of his guard. This piqued the passion of a soldier, who was zealous of a woman's honor. The young Zeno, foreseeing his danger, fled to Constantinople, where he took refuge with the emperor, and told him what had happened. The emperor, moved by the youth's constancy, gave him his daughter and his hand.

L E O II. was four years of age when he was proclaimed, and the people seemed to approve of the choice; but Ariadne, the empress, fearing some one admiring the beauty of her child, caused him to be placed on the throne under the name of Zeno, on a throne, the child one day, while in public, to place a crown on his father's head and call him the emperor. Young Leo died after a nominal reign of ten months, and Zeno himself was suspected of having procured the death of his own child.

L E O III., called Isauricus from the country of his birth, was of humble parentage, and served in the army under Justinian II. Under the reign of Anastasius II. he was the supreme commander of the troops that were besieging Alexandria. Shortly after, Theodosius III., proclaimed in his stead in 716, Leo would not acknowledge the latter, but marched to Constantinople, when Theodosius resigned the crown to him in March, 717. The Saracens soon after, coming in hordes, occupied the land, and by land and by sea proceeded to Constantinople, when the new emperor came out of the harbour with some fire-ships, which, being impelled by a fair wind among the enemy's fleet, threw it into confusion and destroyed many of their ships. The severe winter which followed killed most of the horses and camels of the Saracens, and in the course of the next summer Leo, having defeated them by land, obliged them to raise the siege. It was during this long siege that Sergius, governor of Sicily, thinking the end of the war an end, made himself independent, but Leo sent a new governor to assert his authority, and the rebels were punished. In 719 Anastasius, having attempted to resume the crown, was beheaded. Thus far Leo had shown himself to be a brave and able sovereign, but unfortunately, like many of his predecessors, he began to mix in religious controversy, which rendered him tyrannical and cruel. The new religion of the Koran abhorred the worship or even the use of images, the Jewish law likewise strictly forbade it as leading to idolatry, and this principle of hostility, thus asserted by both creeds, found its expression among the Christians of the East, and was adopted by some zealots, who persuaded Leo, who was a rude uneducated soldier, that the use of images in the churches was contrary to the will of God and unbecoming, as it was contrary to the doctrine and practice of the Hebrews and the abode of idolatry. The patriarch of Constantinople and most of the Greek clergy renounced against this measure, and the Pope Gregory II. condemned the edict of Leo as heretical. This was the beginning of the schism of the Iconoclasts, or image-breakers, which caused great calamities to the empire, and contributed to its losing Italy, as the Italians, supported by the pontiff, refused to obey the edict, and Leo, who was as obstinate as he was ignorant, resorted to violence, which irritated the people still more. It appears that a conspiracy against the life of the pope was hatched at Rome by the Greek officers there, and supported by the exarch of Ravenna; but the people of Rome rose and killed some of the Greeks, and a general insurrection took place over Italy against the emperors, of which the Lombards availed themselves to extend their dominions, and occupied the port of Classe near Ravenna. Even in the East Leo found the greatest opposition among his subjects, who were much attached to the images. The islanders of the Archipelago revolted, and even sent a fleet to threaten the capital, but the Greek fire dispersed it. Great tumults broke out at Constantinople on account of the removal of the images according to the order of the emperor, several persons being put to death in the course of the persecution, and others (women among the rest) were sentenced to death for having excised the mutiny; the patriarch Germanus was deposed, and another prelate favourable to the Iconoclasts was put in his place. Leo II. having died in 721, his successor Gregory III. assembled a council at Rome, in the following year, in which the Iconoclasts were condemned. A messenger, who was despatched to the emperor with the decree of the council was detained in Sicily and not allowed to proceed. Leo, in his wrath against the pontiff, detached from the Roman patriarchate the sees of Ilyricum, of Calabria and Sicily, and placed them under the patriarch of Constantinople. Meantime the Saracens were making great inroads into Asia Minor, and they conquered the whole of Paphlagonia. In the midst of his unsuccessful struggle both against the Saracens of Asia and against the Italians and the pope, Leo died of the dropsy in the year 741, and in 743 some mutiny occurred in his son Constantine, who had married Irene, the daughter of a captain of the Gazari, a Turkish tribe. Constantine was also a furious Iconoclast, and showed himself more cruel and tyrannical than his father.

L E O V., the son of Constantine Copronymus, born at Constantinople in 751, succeeded his father in 775. His disposition was milder than that of his father, but unfortunately he adopted the Iconoclastic tenets with blind fanaticism, and he banished his own wife Irene on this account, and persecuted others. He died in 780, and was succeeded by his son Constantine VI. under the regency of the empress Irene.

L E O V., called the Armenian, because his father was from that country, was proclaimed emperor in 780. After another year under the reign of Nicephorus, but being accused of treason, he was confined in a convent. Michael Rangabē, on ascending the throne A.D. 811, gave him his pardon and restored him to his rank. Leo however was too ambitious to be grateful, and in 813, after being accused of conspiring against the state, accompanied Michael on an expedition against the Bulgarians, in which he is charged by the historians with betraying his master, and causing the loss of the battle near Adrianople. Being left by Michael in charge of the remains of the army, he urged them to rebel, and being proclaimed emperor by them, he marched to Constantinople. Michael made no resistance, but sent to his successor the crown, sceptre and other imperial insignia, and retired into a convent. In 817, he made his last appearance as the leader of the army at St. Sophia's by the patriarch Nicephorus. The Bulgarians having invaded the empire and threatened Constantinople, Leo took the field, defeated them at Mesembria in 814, and in the next year he obliged them to sue for peace. Leo would have been a good prince, had he not meddled in the controversy of the Iconoclasts, and become a persecutor. It appears that the worship of images among the Greeks had degenerated into idolatry, and that such was the fanaticism of the people in favour of their images, that they willingly exposed themselves for that cause. But that the religious cause about the same time the abuse of the images attracted the attention of the Western Church. An assembly of Western bishops took place at Paris in the year 892 to discuss the matter, and the various difficulties. But the opinion of those prelates was not altogether favourable. Leo however, like his Iconoclastic predecessors, went to the other extreme, fancying that the only means of correcting the abuse was by destroying the images altogether: he exiled the patriarch Nicephorus, who would not accede to an Iconoclastic proscription, and he put to death many who were on the same side, which was that of the mass of the people and clergy, and especially the monks, who had the greatest influence in the Eastern empire. Persecution and disorder prepared the way for conquest. Michael, who named the Stammerer, who had contributed to Leo's elevation, and had been consequently made a patriarch, raised his thoughts towards the Empire. He was arrested, con- 

L E O VI., styled the Philosopher, probably on account of his writings, for his conduct gave him no claims to the appellation, was the son of the emperor Basilius the Macedonian, whom he succeeded in 866. His brother Alexander was proclaimed emperor at Alexandria, but through sedition left the government entirely to Leo. The reign of Leo, which lasted
25 years, was not a prosperous or glorious one for the empire, for while the armies were beaten both by the Saracens and Bulgarians, the capital and the palace were disturbed by the intrigues and excesses of the courtiers, and by the emperor's own irregularities. He again exiled the turbulent Pho-

ticus de St. Léon le Grand.' Father Cenciar published

nes, and along with his wife, Cunjada, and children, he

an edition of Leo's works, 3 vols. fol., Rome, 1751-5, in

ich he has charged Quesnel's edition with great incor-

rectness. Leo's Sermons have been translated into French

by the Abbé de Bellègerald, Paris, 1701. The Roman

churches numbers, however, only 250, and magnificently

in the principal cities of the empire, and carried away its inhabi-

tants into slavery. Leo died in 911, at 46 years of age, leav-

ing the crown to his son Constantine Porphyrogennetus, and,

in particular, that he was doing his duty of serving sovereign,

Leo ought to be remembered as an author; he com-

pleted and published the Basiliaca, or Greek compila-

tion of the laws of the empire, undertaken by his father,

and extracted it in great measure from the Justinian body of

laws. But whether, whether whether whether whether whether

has been employed on several missions by the imperial court.

In his youth he had been acquainted with St. Augustine,

and the pope, followed by the clergy, senate, and people,

after his exaltation he had a controversy with Hilarius,

bishop of Aracate (Arles) in Gaul, who had deposed Celido-

nius, bishop of Vesontio (Besançon), because he had mar-

ried a widow, which was forbidden by the canons. Celdi-

nius was deposed and Hilarius consecrated to the see.

Hilarius was summoned to Rome upon several charges

brought against him by other bishops of Gaul, to whom

his severity was outrageous; and Leo obtained a rescript

that the emperor Valentinian III., suspending Hilarius, from

his episcopal office. This suspension however does not

appear to have been lasting, although the fact has been

taken hold of by controversial writers as a stretch of

jurisdiction in the see of Rome. Quesnel published

the works of Leo, Paris, 1675. Leo also induced the

emperor to issue, in the year 445, several laws against

the Manichæans and other heretics, depriving them of

the rights of citizenship and of inheritance, and excluding

them from the council of bishops, attended by the emperor

at Rome in 449, in which he annulled the acts of the

council of Ephesus, which had absolved Eutyches. [ETYU-

CHIAN.] Soon after weds the Ecumenic council of Chalce-

don, A.D. 451, in which Leo's legates presided, condemned

the doctrine of Eutyches, and defined the doctrine con-

cerning the person of Christ. By a canon of this council,

which was Ecumenic, or universal, both for the East and

West, the bishop of Constantinople was declared to be next

in dignity, though equal, to the bishop of Rome, and the

limits of their respective jurisdictions were deter-

mined, the patriarchates of Antioch and Alexandria being

placed under that of Constantinople; which canon passed

the assembly, notwithstanding the opposition of the Roman

church. This canon met and Leo put the abbot of Valen-

tianin on a mission to Attila, who was then devastating

Lombardy, and that Attila consented to a truce with Val-

tianin, and that Attila sent him to Leo for terms. After

Attila's death Leo had to contend with Theodoric, who

was also active in Gallic affairs, for the possession of

the Tiber, A.D. 455, to spare at least the lives and

the buildings in Rome, and not to allow him to land with his

Vandal maidens to set fire to that city or to slaughter the

inhabitants. With the plunder of Rome, and returned to

Africa. Leo died in 461, and was succeeded by Hilarius I.

His writings, especially his Sermons and his Epistles, are

useful for the history of the times. Quesnel has given a full

account of his life, as well as Maimbourg, 'Histoire du Pon-

nent.
Thus was the Western empire revived, 325 years after Odoacer had deposed Romulus Augustulus, the last nominal successor of the Caesars on the throne of the West. From that time all claim of the Eastern emperors to supreme jurisdiction over the duchy of Rome was at an end; and the popes from the same time assumed the temporal authority over the city and duchy, in subordination however to Charlemagne and his successors; they began also to coin money, with the bishop’s name on one side and that of the emperor on the other. In the year 804 the pope went to pass the Christmas at the court of Charlemagne at Aquignans (Aix-la-Chapelle), after which he returned to Rome. In the division which Charlemagne had been induced by the will of his sons, the city of Rome was declared to belong to him who should bear the title of emperor. Louis le Debonnaire was afterwards invested with that title by Charlemagne himself, and we find him accordingly, after the death of his emperor, assuming the supreme jurisdiction over that city on the occasion of a fresh conspiracy which broke out against Leo, the heads of which were convicted by the ordinary courts at Rome, and put to death. Louis found fault with the rigour of the sentence by which his execution, and he ordered his nephew Bernard, king of Italy, to proceed to Rome and investigate the whole affair. Leo, who seems to have been alarmed at this proceeding, sent messengers to the court of Louis to justify himself. Meantime he fell seriously ill and the people of Rome broke out into revolution, and pulled down some buildings he had begun to construct on the confiscated property of the conspirators. The Duke of Spoleti was sent for with a body of troops to suppress the tumult. Leo died in 816, and Stephen IV. wasted without waiting for the consent of the emperor, Lotharius, because of the urgency of the circumstances. Rome was then threatened by the Saracens, who occupied part of the duchy of Benevento, and who a short time before had landed on the banks of the Tiber, and plundered the Basilia of St. Peter’s on the Vatican, which was sacked of the walls. In order to prevent a recurrence of this violence, Leo undertook to surround the Basilia and the suburb around it with walls, and this being completed in four days the assistance of Rome was sent to the emperor, and the produce of a tax levied upon all property in the duchy of Rome, the new town was called Leonina, a name which it has retained to this day. Leo also restored the town of Foro on the Tiber, near its mouth, settling there the people of Corsica, and he run away from their country on account of the Saracens. Towers were built on both banks of the river, and iron chains drawn across to prevent the vessels of the Saracens from ascending to Rome. The port and town of Centum Cellae being forsaken on account of the Saracens, Leo built a new town on the coast, about 12 miles distant from the other, which was called Leopoli, but no traces of it remain now, as the modern Civitavecchia is built on or near the site of old Corofa. Leo died in July, 855, and, fifteen years after his death, Benedict III. was set up in his place, according to the most authentic text of Anastasius, who was a contemporary. But later writers introduced between Leo IV. and Benedict III. the fable of Pope Joan. [Joan, P.] 

Leo V., a Benedictine monk, succeeded Benedict IV., A.D. 903. In less than two months he was violently superseded and imprisoned by a certain Christopher, who was his chaplain, and he assumed the pontifical office. But Chris- topher was not able to retain it long, the Roman people drove him from the usurped see, and put in his place Sergius III., who was the favourite of the celebrated Marozia, a powerful but licentious woman, who disposed of every event in the state. The tenth century is the darkest era of the papacy. Here the unfortunate Leo died is not mentioned; probably he died in prison. 

Leo VI. succeeded John X., A.D. 928, and died seven months afterwards; some say that he was put to death by Marozia, like his predecessor. He was succeeded by Stephen VII. 

Leo VII. succeeded John XI., the son of Marozia, A.D. 937. He meditated a peace between Alberic, duke of Rome, and Hugo, king of Italy, who had offered to marry Marozia, in order to obtain by her means the possession of Rome, but was driven away by Alberic, Marozia’s son. Leo is said to have been a lover of immoral conduct, but little else is known of him. He died in the year 993, and was suc- ceeded by Stephen VIII. 

Leo VIII. succeeded John XII., who was deposed for his misconduct, by a council assembled at Rome, in presence of the Roman people, who, according to their sworn oath, left Rome, John XII. came in again at the head of his par- tisans, obliged Leo to run away, and resumed the papal office. John however died shortly after, and the Romans elected Benedict called V. Other restoring, Cardin- al, took the city of Rome, exiled Benedict, and reinstated Leo, who died about 965, and was succeeded by John XIII. 

Leo IX., Bruno, bishop of Toul, was appointed in 1049 to succeed Damaso II. at the joint recommendation of the emperor Henry III. and the famous Hildebrand (after- wards Gregory VII.). He was continually in motion be- tween Germany and Italy, holding councils and endeavour- ing to reform the discipline and morals of the clergy, and also to check the progress of the Normans in Southern Italy, against whom he made a campaign, and took, or rather the land of the Saracens, the city of Benevento, the Duke of Spoleto, and a bishop of Milan, who was also a bishop in the country which was then ravaged by foreign arms, and betrayed by the wretched policy of Alexander VI. Cardinal de’ Medici travelled through Germany and France, courting the acquaintance of the men of learning, and he playing his own taste for literature and the liberal arts. After the death of Alex- ander VI., in 1503, he returned to Rome, where Julius II. employed him as legate with the army against the French. Being taken prisoner by the latter at the battle of Ravenna, April 15, 1507, he was sent to France, where he took his escape. The French being driven out of Lombardy, and the Florentine republic, with the Gonfaloniere Soderini at its head, being charged with partiality towards the foreigners, the Cardinal de’ Medici was to employ the arms of the allied powers in replacing him, and he assumed the papal supremacy over their native country. A body of 5000 Spaniards, brave to ferocity, were marched under Raymond de Cardona against Florence, in August, 1512. On their way they stormed the town of Prato, and massacred the citizens, who so intimidated the Florentines that they immediately capitulated; and Cardinal de’ Medici and his brother Giuliano soon after entered Florence, and forced the Signoria, or executive, to call a ‘parliament,’ or gene- ral assembly, to assist them in their task. The Signoria, which had met at the beginning of December. This general assembly of the sovereign people had repeatedly been used by ambitious men as a ready instrument of their views, and it proved such on this occa- sion. [Florence, History.] All the laws enacted since the exile of the Medici in 1494, and many that went before, held by the laws. The Medici, however, either on habeas corpus, or commission, was appointed, consisting of creatures of that family, with dictatorial powers to reform the state. No bloodshed however accompanied the re-action; but Su- zanni and Medici, and the new revolted to the Medici were banished. Soon after, in March, 1513, news came of the death of Julius II. at Rome, and Cardinal de’ Medici hastened to the conclave, leaving his brother Giuliano and his nephew Lorenzo, son of Piero, at the head of the affairs of Florence. Cardinal de’ Medici was elected pope, in March, 1513, at the early age of thirty-seven, when he assumed the name of Leo X. One of his first acts was to appoint two
men of learning, Benvenuto and Sadoletto, for his secretaries. He next sent a general amnesty to be published at Florence, where a conspiracy had been discovered against the Medici, for which two individuals were executed; and others, with the celebrated Machiavelli among the rest, were arrested and put to death. Upon the death of the last warman, and Soderini, among the rest. Giuliano being invited to Rome, where he was made Gonfaloniere of the Holy Church, Leo appointed his nephew Lorenzo governor of Florence, but the League of the Medici renewed the war in the same spirit. Florence was now a dependency of Rome, and such it continued during the rest of Leo's life.

The pontificate of Leo X, though it lasted only nine years, forms one of the most memorable epochs in the history of the Western Church. The boy pope ruled with a light as a period of transition for Italy, when the power of Charles V. of Spain began to establish itself in that country; or whether we look upon it as that period in the history of the Western Church which was marked by the momentous event of Luther's Reformation. But there is a third and a more favourable aspect under which the reign of Leo ought to be viewed, as a flourishing epoch for learning and the arts, which were encouraged by that pontiff, as they had been by the former popes, and indeed had been established in general, and for which the glorious appellation of the age of Leo X. has been given to the first part of the sixteenth century.

Leo found the war renewed in Northern Italy. Louis XII. formed a fresh army, under La Trémoille, to invade the duchy of Milan. The Swiss auxiliaries of Duke Maximilian of Austria defeated La Trémoille at Novara, and the French were driven out of Italy. The Venetians however had already marched to Bologna, and left Leo to march to Venice to endeavour to break the alliance. Differences broke out between Leo and Alfonso d'Este, duke of Ferrara, who demanded the restoration of Reggio, taken from him by Julius II., which Leo promised, but never performed; upon which he was excommunicated by Leo. The young Maximilian, disregarding the rights of the house of Este to that town. The pope held likewise Parma and Piacenza, and it appears that he intended to form out of these a territory for his brother Giuliano, and he made attempts to surprise Ferrara also with the same view. His predecessor, Julius, had in view the independence of all Italy, and he boldly led on the league for this purpose; Leo had a narrower object,—his own aggrandizement and that of his family,—and he pursued it with a more cautious and crooked policy.

Leo re-opened the council of the Lateran, which had begun under Julius II., for the extinction of the schism produced by the council of Pisa, which had been convoked by Louis XII., and had been so far complained of by the emperor as a schism, circumstantiated, and the Pope's claims to the imperial dignity. Circumstances were now changed, and Louis XII. made his peace with Leo in 1514, renounced the council of Pisa, and acknowledged that of the Lateran. Louis XII. died in the following year, and his successor Francis I., among his other titles, assumed that of Duke of Milan, which was the signal of a new Italian war. The Venetians joined him, whilst the emperor Maximilian, Ferdinand of Spain, Duke of Savoy, and the Swiss made a league to oppose the French. The Pope did not openly join the league, but he negotiated with the Swiss by means of the cardinal of Sion, and paid them considerable sums to induce them to defend the north of Italy. The Swiss were posted near Susa, but Francis, led by old Trivulzio, passed the Alps by the night, and the Swiss policy was like that of the Romans and marched upon Pavia, whilst the Swiss hastened back to defend Milan. The battle of Marignano was fought on 14th September, 1515. The Swiss made desperate efforts, and would probably have succeeded, had not Aliviano with part of the Venetian troops appeared suddenly on the scene, and raised the battle, and thus preserved the duchy of Savoy. Viva San Marco,' which dispirited the Swiss, who believed that the whole Venetian army was coming to the assistance of the French. The result was the retreat of the Swiss, with great losses in men and arms. He did not only take possession of the Duchy. Leo now made proposals of alliance to Francis, who eagerly listened to them, and they had a conference at Bologna in December, 1515, in which a concordat was agreed upon, regulating the appointment to the sees and dignities in the French kingdom, the pluralities of benefices in force till the French revolution. A marriage was also agreed upon between Lorenzo, the pope's nephew, and Madeleine de Bourbon, niece of Francis of Bourbon, Duke of Vendôme, from which marriage Catherine de Medici, afterwards Queen of France, was born.

In 1516, Leo, under some frivolous pretences, deprived Della Rovere, the nephew of Julius II., of his duchy of Urbino, Pesaro, and San Leo, and placed his own nephew Lorenzo de' Medici. Soon afterwards a conspiracy to murder the Pope was discovered at Rome, and cardinal Petrucci, who was at the head of it, was hanged. In 1517 the council of the Lateran was finally closed, and the same order as before was authorized the sale of indulgences in Germany, which was the immediate cause of the Reformation. [Luther.]

For some years after however, Leo took little notice of the progress of Luther's opinions in Germany; and indeed to the end of his life, was more concerned with what occurred around him in Italy, than with the remote controversy carried on in Saxony, the consequences of which he probably did not foresee.

In 1518 a league of five years was proclaimed by Leo among the Christian princes, to oppose the advance of the Turks, who were threatening Italy. For this purpose the Pope gave to the Christian princes the disposal of part of the revenues of the clergy, which they readily appropriated to themselves, without doing anything against the Turks.

Gian Paolo Baglione of Perugia, a celebrated condottiero, had seized upon the government of his native town. Leo cited him to appear at Rome, with promises however of pardon on his appearance. Upon his arrival, the latter was arrested, put to the torture, made to confess many crimes, and at last beheaded. Perugia was then annexed to the Papal State, as well as the duchy of Urbino after the death of Lorenzo de' Medici.

The alliance of Leo with Francis I. was a hollow one, each party mistrusting the other. At last Leo, thinking that an alliance with the young monarch of Spain and emperor of Germany was likely to be much more advantageous, sent the French to a point of negotiation, determined on a league with Charles V., on the 8th of July, 1521, by which it was stipulated that the duchy of Milan was to be taken from the French and given to Francesco Maria Sforza, and Parma and Piacenza to be restored to the Pope. Leo also subsidized a body of Swiss, and Prospero Colonna with the Spaniards from Naples joined the Papal forces at Bologna, crossed the Po at Casalmaggiore, joined the Swiss, and drove the French governor Lautrec out of Milan. In a short time the duchy of Milan was once more clear of the French, and restored to the dominion of Sforza. Parma and Piacenza were again occupied by the Papal troops. Leo at the same time declared Alfonso d'Este a rebel to the Holy See for having sided with the French, whilst the Duke on his part had treated of peace with Francis and Reggio, which possession of Modena and Reggio. The news of the taking of Milan was celebrated at Rome with public rejoicings, but in the midst of all this Leo fell ill, on the 25th of November, and died on the 1st December, 1521, being 46 years of age, not without suspicion of poison, though some have maintained that he died a natural death.

Leo was generous, or rather prodigal; he was fond of splendour, luxury, and magnificence, and therefore often in want of money, which he was oblige to raise by means not always creditable. He had a discriminating taste, was a ready patron of real merit, was fond of wit and humour, not always refined, and which at times degenerated into buffoonery. This was indeed one of his principal faults. His state policy was like that of his contemporaries in general, and not so bad as that of some of them. He contrived however to keep Rome and the Papal territory, as well as Florence, in profound peace during his nine years' pontificate, no trifling boon, whilst all the north of Italy, the French and Germans and Spaniards, who committed all kinds of atrocities. He was by no means neglectful of business, although he was fond of conviviality and ease, but even his enemies have not substantiated any charge against him, and perhaps the worst defect was his strict discipline among the clergy or the people of Rome, where profligacy and licentiousness had reigned almost uncontrolled ever since the pontificate of Alexander VI.

The services which Leo rendered to literature are many. He encouraged the publication of the Greek Testament, the establishment of a Greek press, and gave the
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rection of it to John Lascaris; he restored the Roman
universities and filled its numerous chairs with professors; he
directed the collecting of MSS. of the classics, and also
of Oriental writers, as well as searching after antiquities;
and by his example encouraged others, and among them
the wealthy merchant Chigi, to do the same. He patron-
ized the works of whom a galaxy of scientists round
Rome. He employed Michel Angelo at Florence and Ra-
phael at Rome in the Vatican. He corresponded with
Erasmus, Machiavelli, Ariosto, and other great men of
his time. He restored the celebrated library of his family,
which on the expulsion of the Medici had been plundered
and dispersed, and which is now known by the name of the
Biblioteca Laurenziana at Florence. In short Leo X., if
not the most exemplary among popes, was certainly one of
the most illustrious. His meritous Italian patronage
(Guicciardini, Storia d’Italia; Roscoe’s Life and Pontifi-
cate of Leo X.; the same in Italian, translated by Bossi,
with numerous and valuable notes and additions. For the
bulla and speeches of Pope Leo X., see Fabricius, ‘Bibliotheca
Latina Medicea et Infinumditia.’)

LEO XI., Cardinal Alessandro de’ Medici, had been
sent by his predecessor, Clement VIII., legate to France,
to receive Henri IV. into the bosom of the Catholic church.
He was very old when elected, on the 1st of April, 1605,
and he died on the 27th of the same month, it is said from
the fatigue attending the ceremony of taking possession
of the Patriarchal church of St. John in Laterano.

LEO XII., Cardinal Annibale della Genga, born in 1560,
of a noble family of the Romagna, was employed as nuncio to
Germany and France, by Pius VII., who made him a car-
dinal in 1816. On the death of Pius VII. he was elected
pope, in September, 1823. He was well acquainted with
diplomacy and foreign politics, and in the exercise of his
authority, and in asserting the claims of his see, he assumed
a more imperious tone than his meek and benevolent pre-
decessor. He re-established the right of asylum for crimina-
lars in the churches, and enforced the strict observance of
mesage days, of which he was declared enemy of the Car
dolfo, and other secret societies. He proclaimed a jubilee for
the year 1825; and in his circular letter accompanying the
bull, addressed to the patriarchs, primates, archbishops,
and bishops, he made a violent attack on the Bible Societies,
as acting in opposition to the decree of the Council of Trent.
Session iv., concerning the publication and use of the Sacred
Books. Leo also entered into negotiations with the new
states of South America, for the sake of filling up the vacant
sees. He gave a new organization to the university of
Sapienza at Rome, which consists of five colleges or faculties,
namely, theology, law, medicine, philosophy, and
philology; and he increased the number of the professors,
and raised their emoluments. He published, in October,
1824, a Moto Pio, or declaration, referring the administra-
tion of the Papal State, and also the administration of jus-
tice, or Procedura Civile, and he fixed the fees to be paid
by the litigant parties. He corrected several abuses, and studied
in a better plan of good policies in his territories. He died
in February, 1829, and was succeeded by Pius VIII.

LEO, JOHN, was a Moor of Granada, who, retiring into
Africa, when his native place was taken in 1492, received
the surname of Afric anus. After travelling a considera-
tble time in Europe, Asia, and Africa, he was taken at sea
by pirates, and subsequently abjured the Mohammedan
religion under Pope Leo X. He is believed to have died
about 1526. His ‘Description of Africa’ was first written
in Arabic, and afterwards translated and authorized
in Italian. It was translated into Latin by John Florian, 8vo.
Antwerp, 1556; 44mo. Lugd. Bat. Elzev., 1632; and into
French by Jean Temporal, 2 tom. fol. Lyon, 1556. Marmol
the Spanish appropriated to himself the greater part of
the text of this work without acknowledging it. Leo Africani
wrote also the ‘Lives of the Arabian Philosophers,’ printed
by Hottinger, in Latin, at Zürich, fol. 1664; they were again
published, from a different manuscript, in the 13th volume
of Fabricius’ ‘Bibliotheca.’ (Moret’s Dict.; Chalmers’
Bibl. Dict., vol. xx.)

LEO. LEONARDO, a celebrated composer, who flour-
ished during the early half of the last century, was born at
Naples in 1694, and received his musical education under
Alessandro Stradella, having for his fellow-disciples Durante,
Vinci, Porpora, &c. He so soon distinguished himself by his
Italian operas, which gained him a high reputation, and
are mentioned by musical critics in strings of praise. But
how fleeing was the fame arising from his compositions
until Mozart appeared, and gave them immortal life! Out
of the many produced by Leo not one survives; and had he
ever dedicated a portion of his time to the church, his
name would now have been utterly forgotten. His Dixit
Dominus, his Miserere, and other sacred anthems, will
always be esteemed for the grandeur of their style, their
deep feeling, the sensible manner in which the words are
set, and for greatness of effect produced by comparatively
similar means. He will be remembered too in musical
history as the master of Piccini, Jomelli, and other able
composers. He died at Naples, in 1755.

LEO ALLATIUS. [ALLATIUS.]

LEO (the Lion), a constellation of the Zodiac, which
contains one of the twelve signs of the wild lion killed by
Heracles in the mythology of the Greeks. It is surrounded by
Ursa Major, Leo Minor, Cancer, Hydra, Sextans, Virgo, and
Coma Berenices. A line drawn through the pole star and the
lowest of the four in the Great Bear (or γ) passes through Deneb
(ο Leonis); and a line drawn through the bright star Regal-
gus (or a Leonis) of the first magnitude and Deneb passes
nearly through Arcturus. The principal stars are as
follows:

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<th>Magnitude</th>
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<td>γ Leo</td>
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<td>δ Leo</td>
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<td>12</td>
<td>2.5</td>
</tr>
<tr>
<td>ζ Leo</td>
<td>3.337</td>
<td>13</td>
<td>2.7</td>
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<tr>
<td>η Leo</td>
<td>3.518</td>
<td>14</td>
<td>2.9</td>
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<td>θ Leo</td>
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<td>16</td>
<td>3.3</td>
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<tr>
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<td>17</td>
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<td>10.450</td>
<td>32</td>
<td>6.5</td>
</tr>
</tbody>
</table>

**Note:** The above table does not represent all the stars in the constellation of Leo, but includes the principal stars that are visible and noted for their significance in the history of astronomy and mythology.
LEON MINOR, a constellation of Heredia, surrounded by Ursa Major, Lynx, Cancer, and Leo. Its principal stars are as follows:—

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<th>Magnitude</th>
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<td>1285</td>
</tr>
<tr>
<td>52</td>
<td>1289</td>
</tr>
</tbody>
</table>

LEOPDICE (Zoology), a name given by Savigny to a genus of *Dorsibranchiata*, Eunice of Couvier. [Dorsibranchiata.]

LEOMINSTER. [HEREFORDSHIRE.]

LEON, R. RYNO DE, one of the former great divisions of Spain, originating in the political formation of that country into different kingdoms, which grew out of the successive conquests of the Christians from the Moors. The kingdom of Leon was the earliest of these, and was formed by the Christians coming out of the fastnesses of Asturias and extending their conquests southwards to the Duero. The immediate successors of Pelayo were called kings of Oviedo or of Asturias, because that province was then the only part free from the Moors, and had never been conquered by them. Alfonso, called the Catholic, a.d. 739 to 757, conquered the towns of Leon, and built Zamora, Salamanca, and Ledesma, as well as part of Galicia. These were added to the dominions of the Asturian kings, though held on the precarious tenure of either paying tribute to the neighbouring Moors, or having to defend them against their incursions. It was Garcia, son and successor of Alfonso III., who, about a.d. 910, transferred the seat of sovereignty from Oviedo to Leon. Henceforth the Christian kingdom in Northern Spain was called the kingdom of Leon and Asturias and was independent of the kingdom of Navarre, which was on the other side of the Ebro. The counts of Castilla, who had formed another Christian state between the two, were for a time dependent, nominally at least, on the kings of Leon, until a.d. 1025, when Castilla became an independent kingdom under a branch of the royal house of Leon; the boundaries of all these kingdoms were of course not clearly or fixedly determined. Almost always at war, either with the Moors or among themselves, the extent of their respective territories varied with every reign, or rather with every fresh campaign. The male line of the kings of Leon became extinct with Bermudo III. in the year 1037, whose sister had married Fernando, king of Castile, who thus united both crowns. But at his death Sancho, one of his sons, had Castile, and Alfonso had Leon and Asturias. The two kingdoms remained distinct, although their crowns were sometimes worn by the same person, for nearly two centuries, until Fernando III., in 1230, permanently united the two kingdoms, assuming the title of king of Leon and Castile, which his successors retained.

The territory known by the name of the kingdom of Leon comprised six provinces, namely, Leon, properly so called; Palencia; Toro; Zamora; Salamanca; and Valladolid. They are all comprised on the north of the Duero, between the Asturian mountains on the north, the Sierra de Gata and Sierra de Gredos to the south, which divide the basin of the Duero from that of the Tagus, or province of Estremadura, and between the boundaries of Burgos and Segovia in Old Castile on the east, and the frontiers of Portugal and Galicia on the west. The whole extent of the kingdom of Leon is roughly calculated at 21,000 square miles, and its population at 1,215,000 inhabitants. The name and ancient boundaries of the kingdom of Leon are now a mere historical remembrance: all Spain being at present divided into provinces, the old division by kingdoms has become obliterated.

LEON, THE PROVINCE OF, is bounded north by the Asturias, south by the province of Zamora, east by that of Palencia, and west by Galicia. It is nearly 100 miles in length from east to west, and about 30 wide from north to south, and its population is reckoned at 1,170 inhabited villages. The province belongs mainly to the basin of the Duero, being crossed from north to south by the Esla, which rises in the mountains of Valdebebona, on the borders of Asturias, and flowed southwards into the province of Zamora, where it enters the Duero. The Esla and its tributaries are many streams, both from the east and the west. There is a small part of the province of Leon, west of Astorga, which forms part of the basin of the Miño, being watered by the Sil and other tributaries of that river. An offshoot of the Asturian chain, which runs southwards to the west of Astorga, forms the limit between the two river-basins. The surface of Leon is mountainous in the north of the province where it rises towards the Asturian chain, but it slopes to the south, where it sinks into the plain of the Duero. The country produces corn, though not sufficient for the consumption; fruit, and vegetables in abundance, and hemp, flax, and wine, which however is not so good as the wine of Toledo and Salamanca. It is not very rich in its resources, or in its pastures, sheep, as well as horses and mules, are reared in this province. There are few manufactories; coarse woollen cloths are made near Astorga, and much flax is spun by the distaff and bleached, and forms an article of export. The castles of Leon and Astorga are strong and handsome, and there are other squares adorned with fountains. Leon contains about 6000 inhabitants.

The two principal towns of the province are:—1. Leon (Legio Septima), an old and now somewhat decayed city, said to have been built by the Roman soldiers of the 7th legion, in the time of Vespasian; it was for more than two centuries the residence of the kings of Leon, and contained the cathedral, built in the thirteenth century, is one of the finest in Spain, and contains the tombs of the old kings. There are two other collegiate churches, San Marco and San Isidro. The Plaza Mayor, or principal square, is handsome, and there are other squares adorned with fountains. Leon contains about 6000 inhabitants. 2. Astorga. The other towns of the province are Sahagun, with a celebrated Benedictine convent; Ponferrada; Villafaneza, on the high road to Leon and Ponferrada; Bonavides, &c.

LEONARD, ST. [VIENNE, HUGON.] LEONARDO OF PISA, or LEONARDO BONACCII, an Italian mathematician who lived at the commencement of the thirteenth century, was the first person who brought the art of algebra to Europe the knowledge of algebra was long afterwards communicated to the rest of Europe. He was a bishop of a see preserved in the Magliabechi library at Florence, entitled 'Practica Geographia.'

LEONIDAS, King of Sparta, commanded the Greek troops sent to maintain the pass of Thermopylae against the invading army of the Persians under Xerxes, a.d. 480. The force under his command amounted to 4000 men, besides the Opointen Locri and a thousand Phocians. With these, during two days' fight, he defended the narrow defile which was the usual passage from Thessaly to the southern parts of Greece; and probably he would have frustrated the utmost efforts of the invaders but for the discovery, by some renegades, of a circuitous and unexplored pass by which a body of the invaders crossed Mount Oeta. On receiving intelligence that his position was thus turned, Leonidas probably thought that the effect to be produced by a great example of self-devotion and obedience was of more importance to the cause of Greece than the preservation of a
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certain number of her best soldiers. Being surrounded and attacked in front and rear, the Spartans and Thebans fell to a man after making vast slaughter: the Thebans asked and received quarter. The corpse of Leonidas was mutilated and exposed on a cross by Xerxes. A stone lion was afterwards raised near the spot where he fell. The allies buried them in their memory, not having them but in memory of the war which was honoured by monumental pillars. Two of the inscriptions ran thus:—Here 4000 men from Peloponnesus once fought three millions:—Stranger, tell the Lacedaemonians that we lie here, obeying their laws. This self-devotion of Leonidas, the beginning of the greatest war related in history, has ever been held to be among the noblest recorded instances of heroism and patriotism.

We have followed the account of Herodotus (vii, 202, &c.). Dioecretus and Plutarch relate it somewhat different.

LEONINE VERSES, a kind of measure much in fashion during the middle ages. It consists properly of the Latin hexameter, or hexameter and pentameter rhymed. No less than ten varieties in the fall of the rhymes are counted; but that which is by far the most common is when the caesura on the fifth syllable rhymes with the end of the line, as for example:

En Rex Edvdores, debochamus ut Leopardsus.

There is an example of a modern attempt at Leonine verses in Parnell’s translation of a passage in the ‘Rape of the Lock,’ beginning,

Et Danae dilectissum pro more retentum.

The rhymes appear universally to be dissyllabic. The classical metre is however not essential. We find in the ancient hymns of the Roman Catholic Church the rhythm of modern versification:—

Quod sum miser tune dicturus, Quam patrimonium rogatum, Sunt quidem curae meae, Justus est secundus accursus.

Or in the famous song of Walter de Mapes, archdeacon of Oxford in the time of Henry I.:—

Mild est propinquis in tabernis mori, Vinum sit apposum morientis orti, Ut dicat, cum veneritis Anglum chor, Deus sit propinquis hodie potis!

The term is said to be derived from Leoninus, a monk of the twelfth century, the reputed inventor of this mode of composition, which however is shown to go back as far as at least as the third. It went out of fashion with the revival of classical learning. For more particulars see Sir A. Crooke, ‘Essay on the Origin, Progress, and Decline of Latin Verse,’ quoted in the ‘Encycl. Metr.‘, which has a long article on this subject; also a tract from the MSS. of Balliol College, Cambridge, containing rules for Leonine verses, edited by Dr. Spalding, 1778.

LEONTODON TARA’ACUM (Dandelion), a perennial herbaceous plant of frequent occurrence. The root, leaves, and flower stem (scape) contain much milky juice; but the root only is employed in medicine: though the leaves by Blanching can be rendered fit for use as a salad, retaining then only a moderate degree of bitterness. The root of plants which are three or four years old should alone be collected, and at Midsummer; as young plants, or roots collected in spring, merely contain a reddish mucilaginous juice, while those of older plants taken up in summer have a brown bitter and saline juice. Those from rich soil are not so potent as those from a poorer land. The root may either be speedily and carefully dried for preservation, or the expressed juice may be imbibed, and so form what is termed the extract.

The chemical constitution is— a peculiar bitter principle, gummos sugar and inulin, and probably some important acid.

Either an infusion, decocation, or extract possesses sedative, deobstruent, and diuretic properties. In chronic subacute inflammation of the stomach or liver, enlargements of the liver or spleen, it proves more beneficial than almost any other applicable remedy. In many cases of dropsy, particularly connected with obstruction of the liver, it has often succeeded when all other diuretics have failed. It is very extensively employed in Holland to obviate the effects of the intermitents or agues common there, and with considerable advantage. The extract, unless very carefully prepared, soon fermenta and spoils.

LEOPARDS, the name by which the greater spotted cats are known.

LEOPARDS OF THE OLD WORLD.

The form seems to have its most perfect development in the area constituted by the Upani of the Zoroasts. Though it must be admitted that the American Jaguar, in point of size, strength, and sturdiness of make, excels the Leopards of Asia and Africa.

The Panther, Felis pardus of Linnaeus, first claims our attention. This animal is supposed to have an ancient and honorable name at Rome, but modern writers are not agreed whether the Leopard and Panther are distinct species, or only varieties. Linnaeus, in his last edition of the ‘Systema Naturae,’ included under the specific name of Felis pardus the Panthera, Pardalis, Pardus, and Leopards of Geazer; Pardus mas, Panthera pardus of Alpin (Egypt); Pardus of Ratis; Tigris mexicana of Hernandez; and Pinun Dasvys, Nie- remb. Nat. Under the specific name of Onca he includes Pardus s. Lynx Brasilienisi of Ray, and the Jaguara of Maragreve. He has no species name for Leopardsus; but Granelin has, and in his edition we find the following species:—1. F. pardus— F. cauda olandata, corpore maculis superioribus oricellatis; inferioribus virgatis (the description of Linnaeus) Schreb., Saugeth., iii, p. 384, t. xexii., with the following references among others:—flavo flavicans, maculis nigris in dorso oricellatis, in ventre longis, Bras., Quadr., the names of Geazer and Ray as quoted above, Pardus maculis seu scutinis variis, Ludolf, Athiop.; Pantherie of Buffon. 2. F. Unica, Once, Buffon. 3. F. W. F.— F. cauda mediein, corpore olandatoe, subcaudinatis nigens. Erkl. Syst. Mam., p. 509, n. 5: Schreb., Saugeth., iii, p. 387, t. cii; Uncia, Cuj. Op., p. 42, Gez., Quaetr., p. 82; Leopard of Buffon. 4. F. Onca, the Jaguar.

Cuvier separates the Panther from the Leopard specifically. The Panther, La Panthere, he makes the Felis pardus of Linnaeus, and the Pardalis, ή πάρδας of the antients. He describes the Panther as yellow above, white beneath, with six or seven rows of black spots in the form of roses, that is formed by an assemblage of elliptical or oval simple spots on each side; the tail of the length of the body, not reckoning the head. This species he speaks of as being spread throughout Africa and in the warm countries of Asia, as well as in the Indian Archipelago; and he states that he has seen individuals where the ground-colour of the fur is black, with spots of a still deeper black (Felis melas, Pér.), but that they do not form a species, observing that both yellow and black cubs have been seen suckling at the same mother (1829) . Buffon, however, figures a Black Leopard, and describes the variety as follows:—In the Tower of London is a black variety, brought from Bengal by Warren Hastings, Esq. The colour universally is a dusky black, sprinkled over with spots of a deep yellow, and which appeared in the year 1770; and Cuvier classifies the Leopard in turning said the hair, beneath appears a tinge of the natural colour.

The Leopard, Felis Leopardsus of Linnaeus, is he quotes it (but it is not mentioned by Linnaeus in his last edition of the ‘Syst. Nat.’ it appears, as we have seen, in Gmelin’s edition), Cuvier assigns to Africa, remarking that it is similar to the Panther, but with ten rows of smaller spots. These two species he adds, are smaller than the Jaguar; he says that there is a third, a little lower on the legs, with the tail equaling the body and head in length, and with more numerous and smaller spots (Felis chalybea, Hem. Schrueb., 190.

Cuvier does not notice the Panther, ο νημων Αριστου (Hist. Anim., ii, 135), and it is supposed by many not to have been one of the Leopard kind. In a note to Felis chalybea, Cuvier states that it is to that species M. Temminck applies the name of Panther; but the former adds that it is certain that the Panther so well-known among savages, and which appears in the Roman shows and games, could not be an animal from the recesses (‘fond’) of Eastern Asia.

Cuvier does not insert in the text of his ‘ Régime Animal’ the Ounce of Buffon; but in a note to the second edition he speaks of it as a species different from the Leopards by more unequal spots, more irregularly scattered, partly notched or ringed, &c, and as appearing to be found in Persia; adding, that his knowledge of it is only derived

from Buffon’s figure, and from that which Mr. Hamilton Smith has inserted in the English translation of the ‘Rêgne Animal,’ from an individual which had been seen living in London.

The Panther and the Leopard were once regarded by M. Temminck as varieties of the same species, Felis Leopards, but he has separated them specifically in his Monograph. Colonel Smith’s Ounce was detected by him in the Tower when that fortress included a menagerie among its attractions. The animal is said to have been brought from the Gulf of Persia, but we only learn that it was very distinct from other species in make, markings, and general appearance. (See post.)

The same author describes the Panther of the antients as standing higher than the Jaguar, and as approaching in its form, which is slender, to that of the Hunting Leopard, Felis Pardus, though much larger in proportion.

M. Lesson enumerates the following Leopards as belonging to the Old Continent:—

1. Felis Pardus, Linn., Temm., Monog. Less. than the Leopard, and of a smaller size than the Bengal; and probably does not exist in Africa.

2. Felis Leopard, Felis Pardus Lin. (Gmel.), Temm.; Felis Pardus, Cuv.; Pauh of the Arabs. Rather less than a lioness; tall (22 vertebrae) of the length of the body.

Locality, Africa and India.

3. Felis jubata, the Chetah, or Hunting Leopard. Locality, Southern Asia.

Among these Felis which are distributed in the Polynesie group of islands (Iles Asiatiques de la Polynesie) M. Lesson notices:

Felis Melas, Péron, observing that this animal, which M. Temminck believed to be a variety of the Leopard, constitutes, on the contrary, a species entirely confined to Java, and especially in the most isolated eastern districts, such as Bantam and Sumatra. The size of the animal he states to be that of the Panther; its fur of a deep black, on which are traced zones of the same colour but less luminous. This leopard, which is called Armao by the Javanese, is used for the singular comparative length of its legs, and the difficulty with which it can be seen in the trees, descripts to the Zoole de la Coquille, t. i., p. 139. He adds that he saw a beautiful specimen belonging to the resident of Sourabaya, and he was assured that Felis Melas was not rare in the island. He also refers to Felis Melas, Horsfield. Localities, Sumatra and Borneo (1827).

Mr. Bennett (Gardens and Menagerie of the Zoological Society, 1830) says, ‘Whether the Leopard and the Panther are in reality distinct species, and if so, on what particular characters the comparison is to be made, are questions that have been so variously solved by writers of the highest eminence, that we cannot, without better opportunities for comparison of specimens than we at present possess, adopt the conclusions to which any one of them has come. The characters enumerated by Buffon and other learned authors, are proved insufficient grounds of distinction, referred both names to one and the same animal; Buffon added a third, that of the Ounce, and increased the confusion by describing as the Panther of the antients, and an animal of the Old Continent, the Jaguar, which is now known to be peculiar to the New; Cuvier subsequently founded a distinction upon the greater or smaller number of rows of spots disposed along the sides of the body; and Temminck, rejecting these characters as unimportant, has considered the Jaguar and Panther as affording the only sure means of discrimination. In this uncertainty the question remains for the present; but there can be no doubt of the complete distinction between both the animals involved in it and that which we have figured as the Jaguar; the Jaguars of the original work, and of the supplement, are either Ocelots or Chetas; and that which purports to be the Jaguar or Leopard, although probably intended for a Chetah, is not clearly recognizable by its form and markings to any known species.

Mr. Swainson, in his ‘Classification of Quadrupeds’ (1835), leaves the question untouched. In his ‘Animals in Menageries’ (1838), he gives the following species:—

must strike even a casual observer, and lead him to believe that the two animals were called by different names.

In the 'Gemmes et Sculpture Antiques' of Grounios there is an engraving of a boy driving a car drawn by two Panthers, rather high on their legs, from a cornelian, headed 'Carro Di Bache'; but Grounios thinks that though this 'red' may be attributed to Bacchus, it may nevertheless be taken for a representation of one from the Cicernian games, for which opinion he gives his reasons. Captain Suryth, R.N., in his interesting 'Descriptive Catalogue of a Cabinet of the Royal Imperial Library at Madrid' notice a medal of Commode, on the reverse of which the emperor on horseback galloping across the field, with a chlamys floating behind him, is in the act of casting a dart at a Panther, which is showing fight. He also refers to the figure of a Lynx or Panther on the reverse of one of Settimius Severus, and to that of a Panther (among other animals) on the smaller coins of Gallienus.

With regard to the Felis Pardus Antiquorum of Smith, Mr. Swainson remarks that the species, if such it really be, is supposed to be the animal known to antient writers by the name of Panthera. It is however, he adds, now so rare, or has been so little distinguished, that Major Smith is only acquainted with one example, which is in the museum of the elector of Hesse Cassel, in whose monogamie it had probably lived. Nothing was known of its native country or of its manners. (See H. Smith's description, including characters intermediate between the Jaguer of America and the Panthers and Leopards of the Old World.)

Mr. Swainson also notices the Ounce in the same work, referring to Major Smith's description, and regretting that that able zoologist had not entered into further particulars. Mr. Swainson states that, judging from the figure engraved from Mr. Smith's drawing, he should term it a lower and more thick-set animal than the Panther; the spots larger, more irregular, and much fewer, but differing more especially in having the tail decidedly annulated with black rings, while those of all the Panthers are spotted. The body, he adds, is described as white; white, yellow or fawn-colour is the universal tint both of the Panthers and Leopards.

In June, 1837, Mr. Gray brought before the notice of a meeting of the Zoological Society of London some Mammalia which he had lately discovered in the British Museum from a collection made by the late Colonel Cobb in India, among which was an adult specimen of the Ounce of Buffon ('Hist. Nat.'), on which Schreber formed his Felis uncia, which has been regarded by Cuvier, Temminck, and most succeeding authors as a leopard, but which, continued Mr. Gray, 'is a distinct species, easily known by the thickness of its fur, the paleness of its colour, the irregular form of the spots, and especially by the great length and thickness of the tail.' Mr. Gray observed, that a more detailed description of this animal was unnecessary, as it agreed in all particulars with the young specimen described by Buffon.

Of the manners of the true Leopards in a state of nature not much is known. They are very active, climb well, and take their prey by surprise. In captivity they are playful, but apt to be treacherous. Mrs. Bowdich won the heart of a Leopard by kindness, and, by presenting him with lavender-water in a card-tray, taught him to keep his claws shaven. The Leopard was a good eater in the delicious essence almost too scanty; but he never was suffered to have it if he put forth his claws. We regret that our limits will not allow us to give this lady's graphic account of her amiable friend, 'Sai, which the reader will find in London's 'Magazine.'

For an account of the prickle occasionally found at the extremity of the tail of the Leopard, see Lion. Among the larger Spotted Cats of the Old World we must notice the Rimau-Dahan, Phil. Felsis nebuloza H. Smith, Griffith. This species partakes in some measure of the markings of both the Tiger and Leopards, though it seems to be more nearly allied to the latter than to the former.

Description.—The Ounce, Felis Pardus, was taken and described by Mr. Smith, to be of the size of a Bencoolen, and died during the process of dentition soon after its arrival. Mr. Horsfield gives the following dimensions:—

<table>
<thead>
<tr>
<th>Sex</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of the body and head, from the extremity of the nose to the root of the tail</td>
<td>30</td>
</tr>
<tr>
<td>Length of the tail</td>
<td>28</td>
</tr>
<tr>
<td>Height at the shoulders</td>
<td>14</td>
</tr>
<tr>
<td>Height at the rump</td>
<td>12</td>
</tr>
<tr>
<td>Circumference of the abdomen</td>
<td>20</td>
</tr>
<tr>
<td>Circumference of the neck</td>
<td>12</td>
</tr>
</tbody>
</table>

Sir Stamford Raffles gives the following account of the manners of the species from personal observation made on several individuals:—Both specimens, while in a state of confinement, were remarkable for their playfulness; no domestic kitten could be more so; they were always courting intercourse with persons passing by, and in the expression of their countenance, which was always open and anticipating, showed the greatest delight when noticed, throwing themselves on their backs, and delighting in being tickled and rubbed. On board the ship there was a small Musi Dog, who used to play round the cage and with the animal, and it was amusing to observe the playfulness and kindness with which the latter was treated by its inferior-sized companion. When fed with a fowl the meal, he seized the prey, and after sucking the blood and tearing it a little, he amused himself for hours in throwing it about and playing after it in the manner that a cat plays with a mouse, being quite dead. He was seen to look on man or children as prey, but as companions; and the natives assert that when wild, they live principally on poultry, birds, and the smaller kinds of deer. They are not found in numbers, and may be considered rather a rare animal, even in the southern part of Sumatra. Both specimens were procured from the interior of Bencoolen, on the banks of the Bencoolen river. They are generally found in the vicinity of villages, and are not dreaded by the natives, except as far as they may destroy the poultry. The natives assert that they sleep and often lay wait for their prey on trees, and from this circumstance they derive the name of Dahan, which signifies the fork formed by the branch of a tree, across which the animals are said to rest and occasionally stretch themselves. Both specimens constantly amused themselves in frequently jumping and clinging to the top of their cage, and throwing a somerset, or twisting themselves round in the manner of a squirmed when confined, the tail being extended and showing to the greatest advantage when so expanded.' ('Zool. Journ., vol. 7.)

Dr. Horsfield, in the work above quoted, confirms the account of Sir Stamford from his own observation on the animal which he was lodged on its arrival in Exeter Change. The Doctor, who does not appear to have been in the vicinity of Felis nebuloza with the Rimau-Dahan, gives in the same paper a more elaborate and accurate description of the latter, to which we must refer our readers. He also gives a figure of it from a drawing made by the late William Daniell, Esq., R.A., a few days after the animal had been placed in Exeter Change.
Jaguar, and is perhaps the most diurnal of the genus. *In the form of the osophagus, and in the transverse ruga of its lower half, the Cheetah was stated to agree with the Lion; and, as in it and in the other Felis, the osophagus was not prolonged into the abdomen, but terminated immediately after passing through the diaphragm. This organ, according to Mr. Owen, has, in the Cheetah, all the peculiarities which are found in the genus Felis. The intestines also agree in character with those of that group; and the cæcum, as usual in it, is simple, having none of the convolutions which is found in the Dog. The liver, pancreas, and spleen resembled those of the Cats generally; as did also the kidneys in the arboreal form of their superficial veins.—*a form however equally common, Mr. Owen remarks, to those of the Viverræ and the Felis, which also agree in having *spiculae on the tongue. The viscera of the thorax in the Cheetah agreed with those of the Cats. The *lyttæ, or rudiment of the luinal bone, so conspicuous in the Dog, is reduced in it, as in the other feline animals, to a small vestige. There was no bone of the penis, and the *glans had retroverted *popilae. The elastic ligaments of the ungual *phalanges existed in the same number and position as those of the Lion; they were however longer and more slender, their length alone occasioning the incomplete retraction of the claws as compared with the rest of the *Polidæ. Mr. Owen concluded by observing that in the circulating, respiratory, digestive, and generative systems, the Cheetah conformed to the typical structure of the genus *Felis, Proc. Zool. Soc.

Mr. Bennett had very good opportunities of examining the Cheetah alive; and we therefore select his Description. — Ground-colour bright yellowish fawn above; nearly white beneath; stomach, abdomen, and on the sides by innumerable closely approximating spots, from half an inch to an inch in diameter, which are intensely black, and do not, as in the leopard and others of the spotted cats, form roses with a lighter centre, but are full and compound.

These spots, which are wanting in the chest, are under part of the body, are larger on the back than on the head, sides, and limbs, where they are more closely set: they are also spread along the tail, forming on the greater part of its extent, interrupted rings, which, however, become continuous as they approach its extremity, the three or four last rings surrounding it completely. The tip of the tail is white, as is also the whole of its under surface, with the exception of the rings just mentioned; it is equally covered with long hair throughout its entire length, and is far longer than half that of the body. The outside of the ears, which are short and rounded, is marked by a broad black spot at the base, the tip, as also the inside, being whistish. The upper part of the head is of a deeper tinge; and there is a slight, but strongly marked line of black line, which extends in breadth, extending from the inner angle of the eye to the angle of the mouth. The extremity of the nose is black, like that of a dog. The mane not very remarkable; consisting of a series of short, thick, and crisp hairs, which extend along the back of the neck and the anterior portion of the spine.

Fur with little of the sleekness which characterizes that of the cats, but exhibiting on the contrary a peculiar crispness not to be found in any other of the tribe. (*Tower Menagerie.*)

Locality. — Asia and Africa, according to Mr. Bennett, who says, *'Chardin, Bernier, Tavernier, and other of the older travellers had related that in several parts of Asia it was customary for the natives of a large number of villages to follow the animal in the pursuit of game, and that this animal was called *Youze* in Persia and Cheetah in India; but the statements of these writers are so imperfect, and the descriptions given by them so incoherent, that it was impossible for us to recognize the particular species intended.* We now however know with certainty that the animal thus employed is the *Felis jubata* of naturalists, which inhabits the greater part both of Asia and Africa. It is common in India and Persia, as well as in Persia, and is very rare in Senegal and at the Cape of Good Hope; but the ingenuity of the savage natives of the latter countries has not, so far as we know, been exerted in rendering its services available in the chase in the manner so successfully practised by the Persians and the civilized inhabitants of the Persian and Hindostan.*

* See further Mr. Owen's paper "On the Anatomy of the Cheetah" (*Zool. Trans.,* vol. i), especially his comparative views of the brain in that species and in the domestic cat.

**Vol. XIII.**—3 K
Mr. Swainson states ('Classification of Quadrupeds,' 1835) that the hunting leopards appear to be of two species,—one inhabiting Africa, the other India. In the former of these it deserves attention that one of these possesses a sort of mane, of which the other is said to be destitute. The mane how-
er, in specimens from both localities, seems to be much the
same. A specimen figured by Dr. Banks, as the hunting
leopard was brought from India by Lord Pigot. Three others,
captured at Seringe-patam among the effects of Tipoo,
were presented by Lord Harris to George III., who placed
them in the Tower. The couple from which Mr. Bennett
made the above description came from the Mahratta, or
Senegal. The Chetah was indeed, as the last-mentioned zoologist
remarks, very imperfectly known in Europe till of late years.
Linnæus does not appear to have been acquainted with it,
and Buffon's Guépard was described from the skin only.
Guépard is the word by which the skin of the animal was
known commercially, in reference to the Senegal market;
and Mr. Bennett is of opinion that Buffon described it with-
out suspecting its identity with the Asiatic animal,—"the
tained habits of which, misled probably by the authority
of Tavernier, he erroneously attributed to his imaginary Ounce.†
Subsequent French zoologists had rectified this error, and
it was generally believed that the tamed leopard of Bernier,
the Youze, the Guépard, and Tavernier's Ounce, were one
and the same animal; but it was not until a year or two
ago—Mr. Bennett wrote the passage quoted in 1829—
'that the possession of a living specimen, brought from
Senegal, in the menagerie of the Jardin du Roi, enabled
M. F. Cuvier to ascertain its characters with precision.
The comparison of this African specimen with the skins
sent from India, and with the notes and drawings made
in that country by M. Duvaucel, at once puts an end to all
doubts of the identity of the two animals.'
In 1871 Col. Sykes observed that Cheeta jubata, L., and
Felis venatica, H. Smith (Chetah of the Mahrtattas), appear to
be identical, the specific differences deduced from the hair
originating in domestication. A skin of the wild animal,
according to the Colonol, has a rough coat, in which the
mane is marked, where domesticated skins from the same
part of the country are destitute of mane and have a smooth
coat. (Zool. Proc.)

Utility to Man.—In the East, where those beautiful ani-
ma Is employed in the chase, they are carried to the field
in low cars, where they are chained. Each leopard
is hooded. When the hunters come within view of a herd
of antelopes the leopard is unchained, his hood is removed,
and the game is pointed out to him; for he is directed in
the pursuit by his scent, which, along cautiously and
crouchingly, taking advantage of every means of masking
his attack, till he has approached the herd unseen, within
killing distance, when he suddenly launches himself upon
his quarry with five or six vigorous and rapid bounds,
striking at the neck or back, and drinking its blood. The
huntsman now approaches the leopard, caresses him, wins
him from his prey by placing the blood which he collects in
a wooden ladle under the nose of the animal, or by throwing
to him pieces of meat, and whilst he is thus kept quiet hoods
him, leads him back to his car, and there chains him. If the
leopard fails in consequence of the herd having taken timely
alarm, he attempts no pursuit, but returns to his car with a
depressed and mortified air.
The skin is of great importance in the trade of
Senegal, but appears to be neglected at the Cape of Good
Hope, where the animal is called Luipard by the Dutch
colonists; indeed it seems to be of rare occurrence there,
for Professor Lichtenstein notices one of the skins as being
worn by a Bantu of the Orange River as a badge of distinction.

Of the habits of the hunting leopard, in a state of nature,
not much is known: but it may be surmised that it captures
its prey much in the same way as it does when employed in
the chase. Mr. Bennett gives a very pretty picture of the
mane unobserved, as the animal gains upon its victim; and as
it would be spoilt by abridgment we here insert it:—
'They are truly,' writes Mr. Bennett, 'an elegant and graceful
pair, having, when led out to the court-yard in their
couples, very fine and graceful manners of moving.
When noticed or fonndled they pur like a cat; and this is
their usual mode of expressing pleasure. If, on the other
hand, they are uneasy, whether that uneasiness arises from
cold, or a craving after food, or a jealous apprehension
of being neglected, or from any other cause, their note con-
sists of a short uniform and repeated mew. They are ex-
tremely fond of play, and their manner of playing very much
resembles that of a cat; with this difference however, that
it never, as in the latter animal, degenerates into malicious
cunning or wanton mischief. Their character indeed seems
to be entirely free from that sly and suspicious feeling of
mistrust which is so strikingly visible in the manners and
actions of all the cats, and which renders them so little
acceptable of real or lasting attachment. The Chetaha, on
the contrary, speedily become fond of those who are kind
to them, and exhibit their fondness in an open, frank, con-
fiding manner. There can, in fact, be little doubt that they
might, with the greatest facility, be reduced to a state of
perfect domestication, and rendered nearly as familiar and
faithful as the dog himself.'—(Tawer Menagerie, London,
8vo. 1829.)

Most of the Hunting Leopards brought to England died in
no long time after their arrival, and the French seem to
have had no better success. The Zoological Society of
London succeeded in keeping their specimens very well
—the principal food given was loan mutton.

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* Mr. Swainson remarks (loc. cit.) that the claws are not retractile. It will
be seen, on reference to Mr. Owen's anatomical description, that they are re-
tractile, though the perception is incomplete.
† But see note 54. p. 141.
But the skin of the Jaguar is subject to much variation, and Sir William Jardine (Naturalist's Library, 'Mammals,' vol. iv.) says that the old skins illustrate strongly marked differences in the spots.

**Locality.** South American; Paraguay and the Brazil principally, but it is said to have been found from the south of Carolina to the Gulf of Mexico.

*Habits, Chase, &c.*—Mr. Martin, in his anatomical description of a Jaguar that died in the Gardens at the Regent's Park (Zool. Proc., 1832), notices the immense volume of the chest as contrasted with that of the abdominal cavity, and states that it gives rise to a heart far larger than is generally supposed. He concludes that the animal is perfectly furnished with an index to the habits and vital energy of this tribe of active and ferocious quadrupeds. That the Jaguar is an animal of great power and frequently of great cunning in disposition there can be no doubt; but balance the one against the other, and it is evident that, if not exceeding the royal tiger of the East in ferocity, its power of D'Azara gives the following anecdote. A Jaguar had struck down a horse; and D'Azara gave instructions that the latter should be drawn within musket-shot of a tree wherein he intended to pass the night, in expectation that the Jaguar would return for his prey. While D'Azara was preparing himself, the Jaguar returned from the opposite side of a river broad and deep, seized the horse in its jaws, drew his head into the water, and dashed across the river with it, landed it and drew it into a wood hard by. All this was witnessed by the person whom D'Azara had placed in concealment to watch till his return.

The Jaguar is a most expert climber. Sonnini saw the scratches left by the claws of one on the smooth bark of a tree some forty feet high without branches. He traced the marks of several ships made by the climber, but the animal had at last reached the top. Humboldt heard the Jaguar's yell from the tops of the trees followed by the sharp shrill long whistle of the terrified monkeys, as they seemed to flee. None of the living quadrupeds or quadrupeds seem to come amiss to it, and birds and fish, which last it is said take in swallow, are sacrificed to its voracious appetite. The Jaguars will openly seize cattle, horses, and sheep from the enclosures; and the havoc made by them is great, as will be easily imagined when we learn from Humboldt that the teeth of the beast are upwards of a foot and a quarter long, and that its canines are often profit by his dextrous cunning. He will, it is stated, pursue this persecuted race into the water where it is not very deep, and will dig up and devour the egg.

With all this the Jaguar does not seem to be very dangerous to man, when boldly confronted, though D'Azara records frequent instances of his attacking the lord of the creation. The Jaguar will indeed often follow travellers, according to Sonnini and Humboldt, but the latter is not a naturalist and observer only heard of one instance where a Llanero was found torn in his hammock, and that happened opposite the Island of Agachas. He relates, on the other hand, a story of two Indian children, a girl and a boy, who were about ten years of age, who were at play on the outskirts of a village, about two o'clock in the afternoon, when a large Jaguar came out of the woods towards them playfully, his head down and his back arched, like a cat. He approached the boy, who was not sensible of his danger, and began to play with him, till at last the Jaguar struck him so hard on the head with his paw as to draw blood, whereupon the little girl struck him smartly with a small switch, and he was bounding back not at all irritated, when the Indians, alarmed by the cries of the girl, came up and drove him away. While Mr. Waterston (Wonderings) was encamped on the banks of the Essequibo, he was visited by one of these prowlers. 'Whenever the fire got low the Jaguar came a little near, but never got so near as to be troublesome, and always went about as if he were merely nosing about to see if he might catch a fish.'

When Mr. Waterton (Wanderings) was encamped on the banks of the Essequibo, he was visited by one of these prowlers. 'Whenever the fire got low the Jaguar came a little near, but never got so near as to be troublesome, and always went about as if he were merely nosing about to see if he might catch a fish.'

The Chatis, the Ocelots, and other Tiger-cats, are noticed under the article Tigress. The Puma is described under the article Lion.
Monmouth, an Italian by birth, defeated them completely at the battle of St. Gothard, near Neubausel, after which a truce was concluded. Many of the Hungarian nobles however, whose pride was offended at being the subjects of a foreign power, in their blind wrath preferred joining the Turks. The Catholic inquisitiveness of the Austrian court, that endeavoured to irritate the Hungarians, among whom were many Protestants and other seceders from the Church of Rome. The plot was discovered before it was quite ripe, and the leaders, counts Salmi, Notadis, Frangipani, and de la Marvis had to be convicted and confined. The whole content now broke out into open insurrection, and chose for their leader Ermeric Tekeli (son of him who had been executed). In 1682 Tekeli was acknowledged by the Porte as prince of Hungary tributary to the Sultan, with some 30,000 and 40,000 Hungarians. The combined forces, having defeated the Imperial troops near Raab, advanced to Vienna. It was afterwards ascertained that 'His Most Christian Majesty' Louis XIV. was one of the secret movers of this Turkish intrusion, as his predecessor Francis I. had excited Solymon to a similar expedition against the capital of Austria. Meantime Louis's diplomatic agent at Cracow had learned of this, and several days later rode to the court of the Hungarians to dethrone Sobieski, who had engaged to assist Leopold. A letter of the French ambassador to his master, being intercepted, discovered to Sobieski the whole plot. With his frank decision and magnanimity of character he managed to lead the confederates to believe, which implied not a few who were present, expressing at the same time his conviction, whether real or politically assumed, that the whole was a gross fabrication. 'But,' added his council, 'apart from the personal posture; let us declare war against the infidels.' The declaration was voted almost unanimously, and Sobieski assembled his troops at Cracow. Meantime Vienna was invested by the Turks on the 15th July, 1683, after Leopold and his army had left it. Messenger after messenger was now despatched to Sobieski to urge him to march. He had some difficulty, owing to the wretched state of the Polish treasury, to collect even 16,000 men, with which he marched towards the Danube. and was joined by the duke of Lorraine with the Imperial forces, forming in all 70,000 men. On the 11th of September the allied army reached the summit of the Calenberg, which commanded a view of the Austrian capital, and of the wide-spreading tents of the Ottomans, who were entrenched around it. On the 12th the battle was fought, the Turks were defeated, and Vienna, and perhaps all eastern Europe, were saved. Hungary was cleared of the Turks after several hard-won battles of justice.

(Lettres du Roi de Pologne, Jean Sobieski, à la Reine Marie Casimir, pendant la Campagne de Vienne, traduites par le Comte Fluten, et publiées par N. A. de Salvandy, Paris, 1849.)

The court of Vienna now took strong measures to prevent any recurrence of Hungarian insurrection supported by Turkish invasion. At the Diet of Pressburg of 1687 the crown of Hungary was declared to be no longer elective, but hereditary in the Austrian male line. Transylvania likewise submitted to Leopold unconditionally. The Turkish war was at length concluded by a great victory gained by Prince Eugene, in September, 1687, near Zenta in Hungary, which was followed by the peace of Carlowitz. at the close of which peace war was now renewed, whose ambition aimed at what Bonaparte affected for awhile in our time—the making of all western Europe dependent on France. The first war ended by the treaty of Nywegen, in 1679, and the second by the peace of Ryswick, in 1697. It was in this second war that the French minister Louvois ordered the French commanders, in the name of his sovereign, to waste the Palatinate by fire and sword. The atrocities committed at Mannheim, Speyer, Oppenheim, and everywhere in the Palatinate, were such as had never been seen before. In 1688 and 1693, are frightful; a sketch of them is given by Putter in his Historical Development of the Constitution of the German Empire, vol. ii., p. 326. The same sympathy was felt in the same year, 1689-91, at the siege of Fried- mastadt, the sovereign of which was allied to the emperor. Catinat, who commanded the French on the banks of the Po, had instructions from Louvois to destroy everything, in order, and according to the often repeated phrase, 'to strike terror among the enemies of France.' After some devastation Catinat, who was not a cruel man, asked for fresh instructions, and represented the deplorable state of the innocent populations. 'Burn and destroy, and burn again,' was the answer of Louvois. (Botta, Storia d'Italia, book xii.)

The third war of Leopold against Louis XIV. was that of the Spanish succession, to which his son the archduke Charles had undoubted claims. Leopold however did not live to see the termination of it; he died in 1705, and one of his chief engagements was the battle of Blenheim at Liégnue, who in 1692 became the first elector of Hanover. This was the act of Leopold, who procured the consent of the other electors to it, in return for important aid in money and troops from two princes of that family. 2. The assumption of the regal title by Frederic, elector of Brandenburg and duke of Prussia, in 1701. Leopold acknowledged him, as he stood in need of his assistance, and Holland, England, and Sweden followed the example. France, Spain, and the Pope renounced their alliance with the Prussians. Leopold's private character was estimable, and his disposition was good and well-meaning, but weak, irresolute, and inclined to bigotry. He had the good fortune to meet with, and perhaps the merit of finding out and appreciating, able ministers; such as his minister, Jean Baptiste du Sable, who it is said was the author of the 'philosophical letter'; and the fear excited by the unprincipled ambition of his antagonist Louis XIV. procured him allies in various quarters of Europe. He was succeeded by his eldest son.

(Les Motus, 1729.)

LEOPOLD II. of Germany and L. of Tuscany was the second son of Maria Theresa of Austria and her husband Francis of Lorraine. After Maria Theresa succeeded, by the death of her father Charles VI., to the Austrian dominions, the grand-duchy of Tuscany, which, according to treaties, he deemed himself entitled to, became separate from the hereditary states of Austria, devolved upon Leopold, his elder brother Joseph being the presumptive heir of the Austrian dominions. As soon as Leopold was of age he took possession of Tuscany, in 1763, and fixed his residence at Florence. During the first five years of his administration he greatly improved the condition of Tuscany, and made it, what it had continued ever since, the happiest and best governed Italian state. His principal reforms consisted in the establishment of just institutions for the clergy in his dominions. By his 'Motuproprio,' in 1756, he promulgated a new criminal code, abolished torture and the pain of death, and established penitentiaries to reclaim offenders. He finally abolished the Inquisition in Tuscany in July, 1782, and placed the monks and nuns of his dominions under the jurisdiction of the respective bishops. The discovery of licentious practices carried on in certain nunneries in the towns of Pistoia and Prato with the connivance of their monskich directors induced Leopold to investigate and reform the whole system of monastic discipline, and he entrusted Ricci, bishop of Pistoia, with full power for that purpose. This occasioned a long and angry controversy with the court of Rome, which pretended to be the head of the religious orders, and which actually exercised, in Leopold's dominions, the power of jurisdiction over the clergy and monastic orders. Leopold however carried his point, and the Pope consented that the bishops of Tuscany should have the jurisdiction over the convents of their respective dioceses. Ricci, who had high notions of religious purity, and was by his enemies accused of Jacobitism, attempted other reforms; he endeavoured to enlighten the people as to the proper limits of image-worship and the invocation of saints, he suppressed certain relics and images in the churches, which were too idolatrous; he discouraged the spreading of religious works and especially of the Gospel among his flock, and lastly he assembled a diocesan council at Pistoia in September, 1786, in which he maintained the spiritual independence of the bishops. He also, during the period of the French revolution, by the little power of the little state of the country, he exposed the abuse of indulgences, approved of the four articles of the Gallican council of 1582, and lastly appealed to a national council as a legitimate and
LEO

CANNONICAL MEANS FOR TERMINATING CONTROVERSIES. Several of Ricci's propositions were condemned by the pope in a bull as scandalous, rash, and injurious to the Holy See. Leopold supported Ricci, but he could not prevent his being annoyed in many ways and restrained in his acts. The whole of this curious controversy is given in Potter's work "Vie de Scipion de Ricci," 3 vols., Brussels, 1826, in which the numerous annexed documents and quotations from other works form the most important part; but the opinions and conduct of the pope, whom he admitted freely into his presence, and his enlightened understanding and sound judgment. He was succeeded by his eldest son. [FRANCIS II.]

LEOSTHENES was one of the last successful generals of Athens. He was of the party of Demosthenes: and the existence of his chief, Archelaus, was an evidence of Athenian supremacy. He repudiated Philip, and he remained with the young man in order to be admitted to his confidence. He joined the league of Sparta, and after his death succeeded the Athenian army. [ANTIPATER.] He left a high reputation, and his picture of Archelaus, is mentioned by Pausanias (1, c. i.) as one of the objects in the Parian worthy of notice. (Diod. xi. 22.)

Another Leosthenes, also an Athenian, was condemned to death, i.e. 368 B.C., for being defeated by Alexander of Phene. (Diod. xvi. 93.)

LEPADITES, one of the many names of the supposed bivalvular opecula of Ammonites, found at Solenhofen, termed Trigonelles by Parkinson, Selenites by Schottheim, and Antipatites Meyer.

LEPANTO, GULF OF, the ancient Corinthian Gulf, is a narrow sea about seventy miles in length from west to east, extending between the northern coast of the Peloponnesus and the mainland of Greece. It is entered from the west, from an outer bay called the Gulf of Patras, by a strait not quite two miles wide, called the little Dar-danelles, which is defended by two castles, the castle of Morea and castle of Roumili. A few miles inside of the strait, on the Roumili or northern coast, is the town of Lepanto, the antient Naupactus, built on a hill, and commanded by a castle, with a good harbour, and between 2200 and 3000 inhabitants. The town was for a long time in possession of the Turks, who fought stoutly against it, and was sustained several sieges against the Turks, to which it was finally given up by Venice at the peace of Carlowitz in 1699, as well as the castle of Roumili and the fortress of Prevesa, while the republic retained the Morea. The country around Lepanto contains 50,000 of ancient Lycia, corn, rice, and tobacco. Leather is also an article of export.

The sea of Lepanto widens towards the middle to the breadth of 12 or 13 miles, exclusive of several deep bays which indent its northern coast: such as the Bay of Salona, the antient Crissan Gulf, which stretches about eight miles to the north. The eastern extremity of the sea of Lepanto terminates in two bays; that of Corinth to the south-east, where the Lechaean or western harbour of Corinth once was. The other, which is called the Isthmus, extends to the north-east, bordering on the territory of Megara and stretching to the foot of Mount Citharon. This last bay is now called Livadostro.

Lepanto has given name to a celebrated naval battle between Turks and Christians, fought on the 7th Oct., 1571, in which the Ottomans were utterly defeated. The Christian allied fleet, consisting of Spanish, Venetian, Genoese, and Papal ships, about 210 in all, was commanded by John of Austria, under whose command was Andrea Doria, the Venetian Provedor Barbaro, the prince of Parma, and Marcantonio Colonna. The Turks, with about 300 sail, many of them however badly equipped, were commanded by Ali Pacha, who had under him the celebrated and other veterans who had served in their youth under Khair Eddin Barbarossa. The Turks had just taken the island of Cyprus, where they had most perilously brought the capitulation of Famagusta, and had tortured to death many of its galant defenders. [CYPRUS.] The Christians

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LEPIDOLOLITE. Lilac Mica. Occurs massive, and is usually composed of small flexible scales. Fracture uneven. Colour pearl-grey, peach-blossom, rose and purple, red, and greenish. The scales, which are sometimes hexagonal, are translucent. Specific gravity 2.85.

Analysis by Dr. Turner of the red variety from Moravia—

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica</td>
<td>50.33</td>
</tr>
<tr>
<td>Alumina</td>
<td>28.30</td>
</tr>
<tr>
<td>Potash</td>
<td>9.04</td>
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<tr>
<td>Lime</td>
<td>4.49</td>
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<tr>
<td>Oxide of manganese</td>
<td>1.23</td>
</tr>
<tr>
<td>Fluoric acid and water</td>
<td>5.20</td>
</tr>
</tbody>
</table>

It is found in granite near Rosena in Moravia, Perm in Russia, at the Isle of Uton in Sweden, and in North America.

LE'PID, the name of one of the most distinguished families of the patrician gens or clan of AEMILII. Those most worthy of notice are—

1. Marcus AEMILius Lepidus, who was sent as ambassador to Ptolemy, king of Egypt, at the close of the Second Punic War, B.C. 201. (Polyb., xvi. 34 ; Liv., xxxii. 2 ; compare Tac., Ann., ii. 67.) He obtained the consulschip B.C. 187 (Liv., xxxix. 5, 56; Polyb., xiii. 1), and again (B.C. 179) he was elected Pontifex Maximus and Censor (Liv., xl. 42, 45; Gell., xii. 8). He was Princeps Senatus six times (Liv., Epit., 48). He died B.C. 130.

2. Marcus Musius Lepidus, Prator B.C. 81; after which he obtained the province of Sicily (Cic., Verri, iii. 91). In his consulschip B.C. 78, he endeavoured to rescind the measures of Sulla; but was driven out of Italy by his colleague Quintus Catulus, and by Pompey, and retired to Sardina, where he died B.C. 70, leaving six sons, while making preparations for a renewal of the war. (Appian, Civ., i. 105; Liv., Epit., 90; Plutarch, Pomp, 16.)

3. Marcus AEMILius Lepidus, the Triumvir, the son of the preceding, was elected B.C. 52, and Prator B.C. 49, in which year Caesar came to an open rupture with the senatorial party. (CEsar; ANTONIUS.) Lepidus from his first entrance into public life opposed the senatorial party; and though he did not appear to many of the talents and energy of character by which Antony was distinguished, yet his great riches and extensive family connections made him an important accession to the popular cause.

On the first expedition of Caesar into Spain, Lepidus was left in charge of the city, the military command of Italy was entrusted to Antony. During Caesar's absence, Lepidus proposed the law by which Caesar was created Dictator.

In the following year, B.C. 48, he obtained the province of Hispania Citerior, with the title of Proconsul; and in A.D. 43 was elected Consul, to which he was appointed by Antony, as master of the horse,—an appointment which again gave him the chief power in Rome during the absence of the dictator in the African war. In A.D. 44 he was again made master of the horse; and in the same year was appointed to the province of Gallaecia; but he did not immediately leave Rome, and was probably in the senate-house when Caesar was assassinated.

After the death of Caesar, Lepidus was courted by both parties; and at the Senate, on the motion of Cicero, decreed that an equestrian statue should be erected to his honour in any part of the city he might fix upon. Lepidus promised to assist the Senate; but at the same time came on a secret negotiation with Antony. On his arrival in his province, being ordered by the Senate to return to Rome to assist Antony, Lepidus was so arrested by the proconsul Numantius, that he had to throw off the mask; and instead of obeying his commands, united his forces with those of Antony.

In the autumn of this year, B.C. 43, the celebrated triumph of Actium, in which Antony and Lepidus defeated Octavius (Augustus); and in the division of the provinces, Lepidus received the whole of Spain and Gallaecia. The conduct of the war against Brutus and Cassius was assigned to Antony and Augustus; while the charge of the city was entrusted to Lepidus (B.C. 43). After the defeat of Brutus and Cassius, Antony and Augustus found themselves sufficiently powerful to act contrary to the advice and wishes of Lepidus; and in the new division of the provinces, which was made after the battle of Actium, Spain and Gallaecia were taken from Lepidus, and Africa given to him instead. Lepidus had now lost all real authority in the management of public affairs; but he was again included in the triumvirate, when it was renewed B.C. 37. In the following year he was summoned from Africa to assist Augustus in Sicily against Sextus Pompeius; and he landed with a large army, by means of which he endeavoured to regain his lost power, and make himself independent of Augustus. But in the battle of Naulochus, which was completely lost by his troops, he was obliged to implore the mercy of Augustus, who spared his life, and allowed him to retain his private property and the dignity of Pontifex Maximus, which he had obtained on the death of Julius Caesar, but deprived him of his title of consular tribunate, and also took him, according to Suetonius, to Cirecius (Octav., c. 16).

After the battle of Actium, his son formed a conspiracy for the assassination of Augustus on his return from the latter's expedition to Asia; but Lepidus, on discovering it, having incurred the suspicion of his former colleague, retired to Rome, where he was treated, according to Dion Cassius (liv., p. 607, 668, Stephan.) with studied insult and contempt. He died B.C. 12.

(Cicero's Letters and Orations; Caesar's Civil War; the Epitomes of Livy, Dion, Appian, &c.; Clinton's Fasti Helmici; and Drumann's Geschichte Romes.)

LEPIDODENDRON (λεπιδόδενδρον, a scale, and δένδρον, wood), an important genus of fossil plants, in the examination of which Dr. Lindley and Mr. H. W. B. Meckie have been chiefly occupied, and have already shown their abilities, not without success, though some uncertainty yet attaches to the botanical relations of these singular specimens of the flora of earlier nature. M. Bontemps in 1822 and again in his Prodrumes (1829) referred the lepidodendron to the natural group of Lycopodiaceae, pointing out however their analogies to Cycadaceae and Coniferae, and assigned the following characters:

Scale-leaves near the extremities with simple linear or lanceolate leaves, inserted on rhomboidal areoles; lower part of the stems leafless; the areole for their insertion marked in the upper part with a transverse cicatrix, of a deltoid figure, the lateral angles acute, the inner obtuse; the bases of the leaves of the essential character of the genus, it appears...
Lepidodendron stemma, Brong. From the 'Fossil Flora', pl. 4.

M. Brongniart, renewing his investigations with the aid of these new facts, evidenced by Lepidodendron Harcort, adopted a different view concerning the vascular system of the stem, for he supposed the central cellular tissue to be entirely surrounded by a narrow zone of large vessels, 'raya transversalement' (by Dr. Lindley considered as a loose cellular tissue), as in Lycopodiaceae and Ferns, without medullary rays, and in which the exterior parts go in bundles to the leaves.

From the whole discussion he adopts the conclusion that by the interior structure of the stems, as well as by their exterior form, these inferences of the botanical authors in regard to the composition of their leaves, the Lepidodendra agree almost completely with Lycopodiaceae, and may be regarded as arborescent groups of that class, which contains in the living creation only small and humble plants; nor does it appear that his conclusion is weakened by the position of these elongated (cylindrical) fossil 'cones' (Lepidodrobia), which are by most botanists referred to Lepidodendra, with the analogous organs of Lycopodiaceae and Coniferæ.

The spear is numerous, and confined to the older strata, and abundantly abundant in the coal formation.

(Brongniart, Histoire des Végétaux Fossiles; Lindley and Hutton, Fossil Flora of Great Britain.)

LEPIDOPHYLLUM. Fossil leaves which occur in the coal formation are thus named by M. Brongniart. They appear to have been sessile, simple, entire, lanceolate or linear, traversed by a single, simple midrib, or three parallel nerves, and without secondary nerves. (Some of these belong to Lepidodendra, others to Sigmaria.)

LEPIDOPTERA, one of the orders into which insects are divided, called Gulosa by Fabricius. This order is composed of those insects which are commonly known by the names Butterflies and Moths, and which possess four pairs of wings, usually of larger size, and with a multitude of minute scales, which to the naked eye appear like powder. The nervation of the wings are not very numerous, and are disposed chiefly in a longitudinal direction: a small tippet-like appendage is situated on each side of the thorax at the base of the wings, which appendages are called by Latreille pterygoda. The antennæ are almost always distinct, and are composed of numerous minute joints. The parts of the mouth are formed into a proboscis fitted for extracting the nectar from flowers, or conveying other juices to the oesophagus. This proboscis, when not in use, lies spirally folded beneath the head and between two palpi covered with hair, which are usually directed forwards and upwards, and which represent the labial-palpi. The proboscis is called, in these insects, antala by Messrs. Kirby and Spence, spirutrompe by Latreille, and lingua according to the nomenclature of Fabricius; and is composed of two subcylindrical tubes, which vary greatly in length in the different species of Lepidopterous insects, and between which there is an intermediate one, formed by their junction, which is effected by means of a series of hooks mosulating one with another like the lamina of a feather. It is through this central tube that the juices are conveyed, the lateral tubes being intended, as it is supposed, for the reception of air; they are called by Messrs. Kirby and Spence solenaria, a name however which is not wanted, since the two tubes in question represent the maxille, and are furnished with minute maxillary-palpi at their base. The mandibles and labrum in those insects are reduced to mere rudiments. The head, thorax, and abdomen are always more or less covered with hair; the former, besides the ordinary compound eyes, is sometimes furnished with simple eyes or stemmata; these however are generally hidden by the hair of the head, and, according to M. Dalmat, do not exist in the diurnal lepidoptera. Of the three segments of which the thorax is composed, the first is usually distinct, though small; the others are confluent: the scutellum is membranous, the axillary suture point ing towards the head. The abdomen is composed of six or seven distinct segments, and is attached to the thorax only by a small portion of its diameter. There are only two kinds of individual, males and females. The principal modifications of the larve, or caterpillars, of Lepidopterous insects are noticed in the article Insecta.

Their food almost always consists of vegetable substances, generally the leaves of plants; some live in rotten, or rather dead wood, upon the decay of vegetable remains, and are very destructive to furs, woolen goods, feathers, &c.; and the larva of a species of moth (the honeycomb moth, Galleria cerana) subsists upon wax, living in bee-hives.*

*This larva forms grubs in the honeycomb, which are invariably covered by a strong silken web, serving to protect it from the bee, and as the nucleus increases rapidly in number, the hive is of necessity soon deserted by its proper inhabitants.
The pupae, or chrysalises, are incapable of eating or locomotion, and are termite obtected; they usually approach somewhat to an oval form, but are pointed more or less at the extremity. The shape of the pupes however varies much according to the species; and those of Butterflies often present numerous angular projections, and sometimes exhibit brilliant metallic colours. The parts of the perfect insect, such as the head, thorax, segments of the abdomen, and tails, can be distinguished. Various modifications of the pupa state of the present insects are noticed in the separate articles on species which are described.

Latreille divides this order into three principal groups, according to the three Linnaean genera Papilio, Sphinx, and Phalaena. To the first group he applies the name Diurna; Crespucularia is used to designate the second; and the third, or that corresponding to Phalaena of Linnaeus, is called by Latreille Nocturna.

The group or section Diurna comprises those species which fly by day, called Butterflies, in which the antennae are terminated by a knob, or are at least somewhat suddenly thicker at the extremity; the anterior margin of the posterior wings is simple; the wings are usually erect when the insect is in a state of repose; the larvae have sixteen legs; the chrysalises are always naked, attached by the posterior extremity, so that the head hangs downwards, and have usually angular projections.

The Crespucularia are distinguished by the antennae being gradually thicker from the base towards the extremity, and forming a prismatic or fusiform club; the extreme tip is slender, pointed, and often recurved. The wings are in a horizontal position when at rest, or a little inclined; the posterior wings have a rigid spine at the anterior margin, which is received into a hook on the under-surface of the superior wings. The caterpillars have sixteen feet, six of which are thoracic, eight abdominal, and two anal; and many of them have a horn-like process on the upper side of the last segment. The pupae are never angular like those of Butterflies, but are generally smooth, and sometimes furnished with small spines. The perfect insects generally fly in the morning, evening, or afternoon.

The Lepadoptera Nocturna have the antennae setaceous, or diminishing gradually from the base to the apex, often serrated or pectinated, especially in the male sex: the wings during repose are horizontal or deflexed, and sometimes convoluted and enclosing the body; the posterior wings, as in the Crespucularia, have a rigid seta on their anterior margin, which hooks into a corresponding groove in the anterior wings. The larvae differ much in form and in the number of feet they possess, varying from ten* to sixteen. They frequently enclose themselves in a cocoon before assuming the pupa state. The pupa is most frequently smooth, but is sometimes furnished with spines, and in some instances it is hairy.

The perfect insect almost always flies by night or after sunset. In some species the females are apetrous.

LEPIDOSTROBUS. M. Bronnigart gave this name to the Fossil Fruits, supposed to be those of the Lepidodendra, which frequently occur in the coal formation, as at Coalbrook Dale, near Bradford, &c. (Histoire des Végétaux Fossiles.)

LEPORIDE, a family of Rodents, the type of which may be considered as existing in the Common Hare.

Linnaeus characterized his genus Lepus, the second of his order Glires, as having two incisor teeth (dentes primores ii.), the upper ones double, the interior being the least, and he placed the following species under it, viz. Lepores timidus. Cauenii, and Brachylaxis. Geoff. added several species, some of which had no claim to a place among the Hares.

Cuvier characterized the Hares as having the upper incisor teeth double, that is to say, each of them has, behind, another smaller one. Their molars, to the number of five, are formed each of two vertical laminae soldered together. In the upper jaw there is a sixth, which is simple and very small. They have five toes before and four behind, an enormous caecum five or six times larger than the stomach, and furnished within with a spiral lamina (hume spirale) which runs throughout its length. The interior of their mouth and the bottom of their feet are furnished with hair, like the rest of their body. He divides the group into—1. The Hares properly so called, which have long ears, a short tail, the hind feet much longer than the fore-feet, imperfect clavicles, and the suborbital space in the skeleton pierced like network (en reseau). The species are, he observes, rather numerous, and so much alike that it is difficult to define them.

Of Lagomys, his second division, he says that the species composing it have the ears moderate, the legs not much differing from each other, nearly perfect clavicles and no tail: they have hitherto, he adds, been only found recent in Siberia, and fossil remains of an unknown species have been detected in the oseous brecia of Corsica.

Mr. Gray's third family of the order Glires is named Le poride, and is thus defined:—

Cutting teeth four above.


Cutting-teeth two above.


Mr. Swainson defines the genus Lepus thus:—cutting teeth \( \frac{1}{2} \) the upper in pairs, two in front, large and grooved, and two smaller behind; lower teeth square; grinders \( \frac{3}{2} \), composed of two soldered vertical plates; a sixth, very small, in the upper jaw; soles of the feet hairy; anterior feet with five toes; posterior with four; tail very short, turned upwards. L. timidus. The common Hare, 1 sp.

Lagomys, Geoff. Mr. Swainson appears to give as a subgenus of Lepus.

The subfamily Leporina seems to be strictly natural, consisting entirely of those species, and they are not few, which are usually known by the name of Hares and Rabbits.

Dental formula:—Incisors \( 4 \) Molars \( 6 \) & 6

\( ^{28} \)

The Common Hare, L. timidus, which is generally considered as the type, is too well known to need description, and it will suffice to state that it is the Asine (Lagus) of the Greeks; Lepus of the ancient Italians; Lèvre and Léporine of the modern Italians; Lèbre and Lébrin Se de the Spaniards; Lèbre and Lébrinimo de the Portuguese; Lévre of the French; Has, Haas, and Hasse of the Germans; Has and Haas of the Danes; Hara of the Swedes, according to Mr. Bell; Hara of the Anglo-Saxons; Fryg
The usual weight of a full-grown Hare is eight or nine pounds; but one is mentioned in London's Magazine of entomology as weighing thirteen pounds one ounce and a half.

We must here notice the Irish Hare, *Lepus Hibernicus*. The Earl of Derby appears to have been the first who drew particular attention to it, and it was described in the *Proceedings of the Zoological Society* a few years before Mr. Yarrell in 1833 gave it as a variety of *Lepus timidus*; but Mr. Bell (in British Quadrupeds) states that a careful examination of several specimens has assured him that it is not a variety of the Hare of England, but that it is specifically distinct. He draws attention to the following differences of character:—The Irish Hare is somewhat larger; the head is rather shorter; the ears are even shorter than the head, while those of the English Hare are fully an inch longer; the limbs are proportionally rather shorter; and the hinder legs do not much exceed the fore legs in length. The fur is also remarkably different: it is composed exclusively of the uniform soft and shorter hair which in the English species is mixed with the black-tipped long hairs, the peculiar mottled appearance of that animal; it is therefore of a uniform reddish brown colour on the back and sides. The ears are reddish grey, blackish at the tip with a dark line near the outer margin. The tail is nearly of the same relative length as in the common species.

It further appears that the *Lepus Hibernicus* or Irish Grey Hare found in Ireland, which may account for its remaining so long unnoticed; for opportunities of comparison could not have been very frequent. Its fur is considered valueless.

The Rabbit, *Oryctolagus cuniculus*, is another species which does not appear; that the English Hare is, occasionally at least, an accomplished and bold swimmer is manifest from the following account related by Mr. Yarrell in London's Magazine (vol. 5):—"A harbour of great extent on our southern coast has an arm across the mouth of considerable size, the nearest point of which is a mile distant from the mainland at high water, and with which point there is frequent communication by a ferry. Early one morning in spring two hares were observed to come down from the hills of the peninsula towards the sea, and, without the least apparent cause, recede from one to two miles from the water, stopped there a minute or two, and then returned to its mate. The tide was rising; and, after waiting some time, one of them exactly at high water took to the sea, and swam rapidly over in a straight line, to the opposite projecting point of land. The observer on this occasion, who was near the spot, but remained unperceived by the Hares, had no doubt they were of different sexes, and that it was the case of the hare that enters the sea, which has probably been done many times before. It was remarkable that the Hares remained on the shore nearly half an hour; one of them occasionally examining, as it would seem, the state of the current, and ultimately taking to the sea at that precise point, *where it was* the custom of the hares to ascend, and be could be effectually without being carried by the force of the stream either above or below the desired point of landing. The other Hare then cantered back to the hills."

The female goes thirty days with young, and produces from two to five at a birth. These are born covered with hair and with their eyes open. The leveret quits the mother and provides for itself in less than a month, and is capable of breeding when it is a year old.

The Common Hare sometimes varies accidentally; there is such a variety in the Museum of the Zoological Society of London. All attempts to promote a breed between the hare and rabbit appear to have been hitherto fruitless.

The *Varying Hare*, or *Alpine Hare, Lepus variabilis* of Pallas, when on an island near the middle of considera-

Dental formula:—Incisors $4$, Molars $3-1-3$. 26.

The fur of the Rabbit is in considerable demand, particularly for the hat trade; and at one time the silver-haired varieties, or silver-sprigs, fetched three shillings a piece, for ornamental linings to cloaks, &c.; in Pennant's time however the price had fallen to sixpence.

The subfamily *Lagomys* consists of a single genus *Lagomys*, which has the muzzle acute, the ears short and somewhat rounded, the soles of the feet hairy; the claws, of course, and the talon.

Examples. *Lagomys pusillus*, Desm.; *Lagomys Alpinus*, Desm.; *Lepus Alpinus*, Pallas; and *Lepus Ogo-

Locality. The south-east coast of Russia, and about all the ridge spreading from the Urals to the south, the habitat of *Hares*.

Hares choose these localities when in the vicinity of a wood, which will afford them a ready refuge in the case of danger or alarm. Their burrows, especially those belonging to the old ones and to females, are curious and intricate, so well concealed and subterranean, that the winter change of colour advances very rapidly, and by the middle of November the whole fur, with the exception of the tips of the ears, which remain black, is of a fine shining white. The back becomes quite white within eight days. During the whole of this remarkable change in the fur, the skin under the fur becomes yellowish, and it appears as if the fur actually changes its colour, and that there is no renewal of it. The fur retains its white colour until the month of March, or even later, depending on the temperature of the atmosphere, and by the middle of May it has again a grey colour. But the spring change is different from the winter, as the hair is completely shed."

Whether the Quarterly Review nor the Edinburgh Philosophical Journal, vol. ii, is an interesting account of the palaeontology of the animal, it appears that there is no evidence that the winter change of colour takes place without any removal of the hair, as in the Ermine, and somewhat in the same way that the change is effected on the head of the
search, were it not for their peculiar cry or call. This is described as being like the piping of a quail, but deeper, and so loud as to be heard at the distance of half a German mile. It is repeated at just intervals, three, four times, and even six, at night and morning, but seldom in the day, unless the weather be cloudy. Both the male and female emit this note, but the latter is silent for some time after she has given birth (in May) to her young, which are born naked and blind, and are carefully attended to by the mother, who covers them up warm with the cozy materials of her nest.

The subfamily 

Carina consists of the genera Cassa and Kerodon. An account of the former genus will be found under that title; the genus Carina has the following

Dental formula:---Incisors 2 2 2

Molars 4 4 4 = 20.

The genus now modified appears to contain but one species, the well-known Guinea-Pig, Cassa aerea and Cassa porcellus of Erxleben, Cassa Coloba of Dasmarens and Schreber, Hydorharus aerea, Hydrocharus coloba and Anama aerea of F. Cuvier, Mus porcellus of Linna, Cochon d'Ivoire of Buffon, and Forteguarde Curry of Shaw.

Generic Character.---Molars composite, having only one simple lamina and one forked; no tail; fore toes separated, nails short, robust, like little hoofs; two ventral mammae.

Geographical Distribution.---The Guinea-Pig is now to be found in a semi-domesticated state in most parts of the world; but its original locality appears to have been South America, Brazil, Paraguay, Guiana, &c. The natives eat the flesh, which is said to be well flavoured, resembling that of the domestic rabbit.

Hydrocharina. This subfamily, consisting of one genus, Hydrocharus, has been treated of under that title.

A lengthened notice of the subfamily Dasyproctinae will be found under the article Ancrens. The genus Dolicothus is supposed to be found on the Patagonian Cavy, Dasyprocta Patagonica, vol. i., p. 214.

FOSSIL LEPORIDAE.

Of the genus Lepus the following species are named: Lepus diluvianus, Hare of the Caverns, Cuvier, Buckland, Fander, and D'Alton; Lepus priscus, Hare of the oseous brecias, Cuvier. Fossil Hares and Rabbits are also recorded by M. Bourdet, M. D'Orbigny, M. Risso, M. Wagner, M.M. Croizot and Jobert, and M.M. Marcel de Selves in their works.

The following fossil species of Lagomys are recorded: Lagomys Coriaceus and Lagomys Sardus, from the oseous brecia of Corsica and Sardinia respectively. Other remains of Lagomys are noticed by Cuvier, Wagner, M. de Selves, Bravard, Sedgwick (Oeningen beds), and Murchison. All tertiary.

Of the Agouti (Dasyprocta of Iliger, Chloromys of F. Cuvier) remains are noticed by M. Bravard and M. Eichwald. Tertiary.

LEPRA (the Greek word lepra, scaliness), an affection of the skin, of the order Squamum, or scaly diseases, of William and Bateman. It is characterised by an eruption of circular white spots of inflamed skin covered with scales, and from the size of a pin's head to that of a shilling or even a half-crown piece, occasionally mixed with large irregular patches formed by the coalescing of the borders of several contiguous spots. The scales in this affection possess a peculiar character, by which it is distinguished from pityriasis and psoriasis, other diseases of the same order. From the surface of the inflamed spots a diseased cuticle is produced, which concretes into thickish crusts or scales of a glistening white silvery appearance, and from being secreted more or less tenaciously towards the circumference of a circular elevated form is given to the outer margin, whilst the centre is left almost or entirely free from scale. The whole is surrounded by a slight area of redness. In the early stage the muzzle of the animal, and the small portion of the tail which is slightly raised above the surrounding parts, possesses only a thin scaly covering; and in the larger patches, formed by the coalescence of several spots, the characteristic appearances became somewhat confused; still, on careful examination, the elevated margin, the osseous outline, and central free spot may more or less be recognised.

This disease generally afflicts young people from the age of puberty up to thirty, and appears to occur more frequently in women than in men. Sometimes the whole body becomes affected by it, even the face, and sometimes, but more commonly it is confined to the limbs, and is observed especially on the skin below the knee and elbow, in which situations its true characters are generally most marked. The health of persons affected with this disease is but little disturbed, the accession of the eruption alone being preceded by headache and slight febrile disturbance. It is generally tedious of cure, recurring periodically in some constitutions, whilst in others it will continue for two or three years. Most frequently it arises without any assignable cause; occasionally it has appeared to be dependent upon suddenly suppressed cutaneous transpiration from persons drinking cold water when over-heated.

This disease must not be confounded with the leprosy of the sacred and ancient writers, a term which appears to have been used to express any loathsome affection of the skin, or, as some imagine, to have referred to the disease described in the present day under the term Elephantiasis.

[LEPHANTIASIS.]

LEPROSY. [LEPRA.]

LEPIDIDES, a subfamily of Dipterous insects of the Family Brachystoma (Macquart). The family of insects to which the present section belongs is distinguished by the proboscis being subterminal and having the lips terminal and thick; third joint of the antennae simple, often spatulate; stylet often dorsal; abdomen usually with five distinct segments. The wings have commonly one submarginal and three posterior cells. The family Brachystoma is divided by Macquart into four tribes or sub-families—Xylotocta, Leptides, Dolichopoda, and Syrphideae. The first, or the Xylotoctae, are distinguished by the third joint of the antennae being conical, by the wing having two submarginal cells, and by the tarsi being furnished with two small cushions. In the subfamily Leptides the antennae are inserted near the base of the head, and have generally a terminal stylet; the tarsi are furnished with three small cushions; the femora are elongated; the wings have two submarginal cells, and generally five posterior cells. This group contains six genera, of which one (Cinctocerus) is distinguished from all the other Leptides by its possessing only three posterior cells to the wings, the remaining genera having five. In the genus Lepis the head is depressed;
the palpi are generally decumbent, with the second joint conical and the third joint short and generally conical. The thorax has a distinct tubercle; body conical and transverse.

The species inhabit Europe. The _Leptis vermiculo_ (Muzea vermicul, Lin.) has been separated from _Leptis_proper by Macquart, and forms the type of his genus _Ver-

... is a species of _Meandrina_ (Meandrina Phrygius), in which _Magilus_, _Ven-

Dr. Rüppell is of opinion, from the few words of M. Rang concerning the young of _Magilus_, that the last-named naturalist had before him the genus above described. Dr. Rüppell notices the following distinctions between _Lepto-

... the shell are always disunited; in the latter they are always united. The animals of the two genera are distinguished by the possession of an operculum in the one (_Magilus_), and its absence in the other, and by the difference in the proboscis; nor is the siphon of the _Magilus_ present in _Leptoconchus_.

**Place in the Animal Series.**—Dr. Rüppell hazards a suggestion that _Leptoconchus_ approximates to the _Janthina_. The number of the tentacles, the oval proboscis, the mantle deprived of a siphon, the petinated branchial framed of crowded pyramids, and the absence of an operculum, favour this approximation, as well as the analogies of the shell; but he adds that he is perfectly aware that the difference of the habitations of the two genera is too great to allow of a reliance on this suggestion. (Transactions of the Zoological Society of London, vol. i.; Proceedings of the same Society, 1834.)

**LEPTOPHILA**, Mr. T. Bell's name for a subfamily of
The whole of the serpents composing these genera live, says Mr. Bell, "in woods, entwining themselves amongst the branches of trees, and gliding with great rapidity and elegance from one to another. These habits, combined with the graceful slenderness of their form, the beautiful metallic reflection from the surface in some species, and the bright and changeable hues in others, place them amongst the most interesting of the serpent tribe. Their food consists of large insects, young birds, &c., which the extraordinary size of the head, the width of the gape, and the great distastefulness of the neck and body, enable them to swallow, notwithstanding the small size of these parts in a state of rest; in a specimen in my possession of Dryinus auratus, for instance, the length of which is four feet, nine inches, the diameter of the neck is hardly two lines. When the skin is distended either by food or during inspiration the scales are separated from each other, and the skin, which is of a different colour, becomes visible in the interstices, producing a curious reticulated appearance. Notwithstanding the poisonous mark was affixed by Linnaeus to the only species of Dryinus known to him (Coluber marginata, Linn.), it is well ascertained that they are all of them perfectly harmless; and it is asserted of that species that the children are in the habit of taming and playing with them, twining round their necks and arms, and that the snakes appear pleased at being thus caressed."

Genera. Dryinus (Merrem).

Generic Character.—Upper jaw much longer than the lower. Rostrum very narrow, more or less acute at the apex, which in some species is distinctly mucronate and movable. (Bell.)

Mr. Bell records six species, three of which are American, Carolina, Mexico, and Brazil; and the other three Asiatic, two from the East Indies, and one from the Island of Java.

Example, Dryinus auratus. Yellowish-grey, shining with pale yellow and golden, or purplish and black; rostrum subacute. Locality, Mexico.

Leptophis. (Bell.)

Generic Character.—Rostrum obtuse; upper jaw projecting but very slightly beyond the lower.

Mr. Bell records three species, three from the East Indies, and one from America (Carolina). To these Mr. Gray subsequently added two species, L. punctulatus and L. longipenis (Coluber punctulatus, Lacép.), collected by the expedition under Captain Phillip Parker King, R.N. (Survey of Australia.)

Example, Leptophis purpureascens (Coluber purpureascens, Shaw). Violet, changing to green, gilded; a lateral and dorsal line of a paler hue; head obtuse. Locality, the East Indies. (Zool. Journ., vol. ii.)

LEPTOPHIS. [LEPTOPHINAE.]

LEPTOPHIDAE. [MACROPODIANS.]

LEPTOSOMUS, a genus of birds established by Vieillot, and belonging to the family Cuculidæ. Example, Leptosoma afer; Cuculus afer, Gmel.; Edolian Cuckoo of Shaw, noticed by the late Major James Franklin, F.R.S., &c., in his "Catalogue of Birds" collected in the Ganges, between Calcutta and Benares, and in the Vindhyana Hills, between the latter place and Gurrah Mundela on the Nerudda. (Zool. Proc., 1830-31.) Lieutenant-Colonel Sykes also describes and notices it in his interesting catalogue as occurring in the Dukhan (Deccan), but as being rare. (Zool. Proc., 1832.)

LEPTOSTOMIÆ. [INDICATORINÆ, vol. xii., p. 459.]

LEFUS. [LEPIDIDÆ.]

LEPIDUS (the Hare), one of the old constellations, said by Hyginus to be in the act of running from Orion's dog, which is the greater dog, according to some, and the lesser, according to others. It is situated directly under Orion. The principal stars are as follows:—

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LÉPIDA, called Iлерда in the Roman times, is a town and fortress in Catalonia, on the right or western bank of the river Segre, a few miles above its junction with the Ebro, and not far from the frontiers of Aragon. A fine bridge, the foundations of which are Roman, connects the two banks of the Segre. Lerida is a bishop's see, has a handsome cathedral, several other churches and convents, a military hospital, and 12,600 inhabitants, exclusive of the garrison. It is built partly on the slope of a hill, on the summit of which is the citadel, which has four bastions, and partly along the bank of the river, extending to the foot of another hill, which is also crowned by a fort. Lerida has sustained many sieges; it was taken by storm by the French in the war of the succession in 1707, and again in the last war in May, 1810. The country around is very rich in corn, wine, oil, pulse, hemp, and flax. Lerida, although
it does not maintain its former importance, is still one of the most considerable towns of Catalonia. It had once a flourishing university, which was suppressed when King Philip II of Spain established that of Corvora. [CATALONIA.] Lerida is 85 miles west of Barcelona.

LERISTA, a genus of reptiles belonging to the family Scincidae, established by Mr. Bell, and thus characterized by him:—

*Head scutated; no eyelids; ears hidden under the skin. Body slender; the scales smooth and equal. Feet four; the outer toes, little, very short, and didactylyous; the posterior longer, rounded. Vent simple, semicircular; no preanal or fomoral pores.*

Example, * Lerista lineata,* which is bronze-green, paler beneath, with two dorsal and two lateral black lines.

DINITY, Australia.

Mr. Bell observes that this new genus agrees with *Gymnophthalmus,* Miss., and *Ablepharus,* Fitzing., in the absence of eyelids, but differs from both in the number of its toes. In addition to this difference in the structure of the feet, it is, he remarks, remarkably distinguished by the absence of external ears, and by its elongated and anguiform body; characters in which it agrees with *Saiphos,* Gray. The last-named genus, he adds, however, possesses eyelids, and differs in many of the number of its toes from *Lerista.* [Zool. Proc., 1833.]  

LERNEA, the Lemans, which M. de Boninville collected into a family with that name, are parasitic animals frequenting fish and have presented some difficulty to zoologists. They are tied up in filaments which were found at the end of his *Intestinum Caninum,* Caviaria Intestinum, *Entozoa Nematodea* of Rudolphi, but as a very different family, and requiring to be divided into many genera when their economy is better known. The better opinion seems to be that they are crustaceans, and Mr. Milne Edwards (1834) so considers them. In his proposed arrangement the Crustacea Superiores form the second subclass of his class Crustacea, and consist of two legions: the first, the legion of Parasites Marins, Walking Parasites; the second, the legion of Parasites Internes, or internal parasites. This last legion is composed of the order of *Siphonostomea,* and of the order Lemans. [Parasyttes Nat. Gr.]  

LEROI, JULIEN DAVID, born in 1724, was the son of an eminent watchmaker at Paris. Having made choice of architecture as a profession, he applied himself to the study of it in a very different manner from the plodding routine then established; and being anxious to become acquainted with all that was known in his time, he proceeded to Italy, where he lived from 1724 to 1734, and, after passing some years at Rome, he visited Greece in 1754. On his return he gave the world the fruits of his researches in his *Ruines des plus beaux Monuments de la Grèce.* Although not free from numerous errors, which were committed by many others, Terpander, the author corrected in his second edition (1770), this work had the merit of being the first publication of the kind—the first attempt to show what Hellenic architecture actually was. Undoubtedly its value has since been greatly diminished by the more accurate labours of Stuart and others, but its appearance forms an epoch in the chronology of the art. It certainly contributed much to correct the vitiated taste that had long been in vogue in France, and to open new views in regard to architecture, which meritorious aim was assiduously followed up by its author in the excellent lessons he delivered during forty years as professor. His whole life was devoted to his own studies, and the instructive lectures which he delivered at Rome, universally regretted, in January, 1804, at an aged seventy-five. Besides the one above mentioned, Leroy published several other works, among which are *Histoire de la Disposition, &c. des Temples des Chrétien,* 8vo., 1764; *Observations sur les Édifices des Anciens Peuples,* 8vo., 1768; *Anciens Temples,* 8vo., 1777.  

LEROS. [ARCHIPELAGO, GREECE.]  

LESBONAX, a Greek rhetorician and philosopher, was a native of Mitylene. He lived in the times of Augustus, and had a great veneration for the city of Rome under the reign of Tiberius, and was highly favoured by that emperor (Suidas, under *Lesbonax* and *Potamon,* }

We learn from Lucian that Lesbonax approved of dancing as a means of moral cultivation. (On Dancing, 11, p. 305, d'Herz.)

Suidas informs us that Lesbonax wrote many philosophical works; but none of them are extant. Photius says (Cod., 64) that he had read sixteen orations of Lesbonax, of which however only two have come down to us, one exhorting the Athenians to assemble, and the other against the Barba- monians, and the other advising them to attack the Thbesians. Some critics have placed the author of these orations in the time of the Peloponnesian war; but a mere perusal of the orations will show that they must have been written at a much later period. We know moreover from the writings of Libanius, Seneca, Quintilian, &c., that it was very common for rhetoricians to declaim upon subjects chosen from ancient history. These orations were first published by Racine (Rev., 15, 1777), and subsequently by Orations of *Aesines,* *Lesias,* and others (Paris, 1755); by Gruter (Han., 1619), and also by Reiske, in the eighth volume of the *Orationes Greec.*

There was also a grammarian of the name of Lesbonax, who probably lived at a later period, who wrote a work entitled *Lesproédrosis,* concerning grammatical figures, &c., which was first published by Vaelkenaer in his edition of *Ammonius,* p. 177-189.  

LESBOS, is an island of the Aegean Sea, near the coast of Asia Minor, being separated from the coast of Troas by the Adramytnian Gulf. Its length is 50 miles from Cape Sigmoid, which is its north-western extremity, to the Lacedaemonians, at its south-east end, which last looks directly into the entrance of the Gulf of Thasos. The island is remarkably uniform, owing to some deep gulfs which indent its coast, and varies from seven to fifteen miles. Mitylene, the chief town of the island, lies on the south-eastern shore opposite the coast of the ancient Eolis. It had formerly two harbours, was a place of great importance, and sent out numerous colonies. Mitylene still exists as a village, and gives its name to the island. Methymna, another ancient town of Lesbos, stood on its north-east coast among the ruins of Tropas. The towns of Antissa, Eresus, and Pyrrha, stood on the western coast of the island. The deep bay of Pyrrha, which indents the middle of the island, was called Euripus Pyrrhaeus, now Porto Kanali; the other bay, farther south, west of Cape Malia, is now named Porto di Jero. The island has many villages, but no town of any importance, and contains about 40,000 inhabitants, Greeks and Turks. It is considered one of the most fertile and beautiful of the Greek islands. Its land and hills are well wooded, and in ancient times it was known as a place of refinement, luxury, and licentiousness. It produced the best musicians of Greece; some of its first lyric poets, Alcarius and Sappho among the rest; several distinguished philosophers and rhetoricians. Thucydides, the greatest of our historians, was born on the island. Theophrastus, Lysias, and Demosthenes, the friend of Pompey and the Roman orator, was a native of Mitylene, as was the musician Terpander, who invented the lyre with seven chords.  

The earliest inhabitants of Lesbos are said to have been Pelasgians; it was afterwards colonized by the Æolians in their great migration. The children of Orestes are said, after fifteen years of victorious and strife, to have conquered the island of Lesbos. [ÆOLIANS.]

Pittacus, who flourished about 660 b.c., became, according to the Greek meaning of the word, tyrant of the city of Mitylene, and he it was who first opposed and afterwards succeeded to the government of Thasos, which he had invaded the district of Troas, which was claimed by the Lesbians as their own. The Athenians were ultimately defeated by Pittacus. This was in the time of the Lydian monarchy, after the fall of which Lesbos was obliged to submit to the power of Persia. After the battle of Mycale (479 b.c.) Lesbos freed itself from Persian dependence, and became the ally of Athens. During the Peloponnesian war, the people of Mitylene being accused of a secret negotiation with the Athenians, the Athenians sent against them. The other cities in the island, except Methymna, made common cause with Mitylene. After some resistance the Athenians gained a complete victory, when the walls of Mitylene were razed, and many of its wealthier inhabitants were sold as captives. Pittacus was appointed by the commander to put to death all the males who had attained the age of puberty, but they became slain.
of their own barbarity, and despatched messengers to re-
voke the order; the messenger, however, was just one of the pro-
prietary guards, and was immediately haled for the slaughter. (Thucy-
dides, iii. 36-49; Strabo, xiii.) The whole island, except the terri-
tory of Melitvnya, which was spared, being divided into 3000 parts, 300 of these parts were devoted to sacred purposes, and the rest distributed among the Athenians, by whom they were rented to the antient proprietors.

The subsequent history of Lesbos is like that of Chios, Samos, and the other Greek colonies of Asia; it passed successively under the dominion of the Macedonians, the Romans, king of the Byzantines; it was afterwards captured by the Venetians, A.D. 1185, was recaptured by the Greeks, and at last seized by the Turks, who retain it to this day. (Strabo, Casaub., 616.) [Cleon.]

LESLEY, Sir George, 1st Baronet.

LESLIE, CHARLES, born about 1650, died in 1722, a person much engaged in the political and theological con-
troversies of the age in which he lived, and some of whose writings, especially the book entitled 'A short and easy Way with the Deists,' are still read and held in esteem. His writings in the political controversies of the time were all in support of high monarchical principles. His theo-
litical writings were controversial: they are too many to be par-
icularized in the brief space which we can allot to him, but an evidence of the religious and political views which he held, and which were carried into effect by the acts of the succeeding governments, may be gathered from his book 'The Nature of Libraries,' which appeared in 1793, in nine volumes 8vo., in which he attempted to lay the foundation of his subsequent independence.

In 1766, he proceeded through Germany and Switzerland, in company with Mr. Thomas Wedgwood. Upon his return he became candidate for some professorship in the university of St. An-
drews, and shortly afterward for that of natural philosophy of Glasgow; but in both instances was unsuccessful. In 1768 he again set out upon a continental tour, and travelled through Denmark, Norway, and Sweden, with Mr. Robert Gordon.

In 1770 he offered himself as a candidate for the professor-
sch of mathematics in the university of Edinburgh, which had been vacant by the promotion of Professor Playfair to the chair of natural philosophy. At this period the only production of Mr. Leslie relative to the pure mathematics consisted in an 'Essay on the Resolution of Indeterminate Equations,' written about the time of his quitting the university, and printed in the 'Edinburgh Philosophical Transactions' for the year 1788; but he had published several papers on different branches of physics in Nicholson's 'Phil-
osophical Magazine.' He was also rewarded with the freedom of the city of Edinburgh, and was recently awarded to him the Rumford medals for his researches on the nature and propagation of heat, an account of which had appeared the preceeding year ('Experi-
enments on the Nature and Properties of Heat,' 8vo., 1804). In addition to these honors, which acquired, he came forward with the warmest testimonials of Drs. M'askelyne and Hutton, Sir Joseph Banks, Baron Maseres, and other persons of distinction; but the appoint-
ment rested in the magistrates and town council of Edin-
burgh, subject to a clause in the charter of the university, which declares that the electors shall take advice of the clergy in the choice of professors; and this being desirous of promoting the election of Dr. Thomas Macknight—one of their own body, and a gentleman of much character—this committee, after full deliberation, accordingly brought the affair before the General Assembly.

The debate which ensued (see 'Report of the Debate,' Edin., 1805, 8vo.) and which lasted for two days, was marked by the powerful and sarcastic arguments of Sir Henry Moncrieff, who conducted the defence. Near midnight on the second
In Nicholson's Philosophical Journal, vol. iii. and iv., "Description of an Hygrometer and Photometer;" (Or the Absorbent Powers of different Earths; Observations on Light and Heat, with Remarks on the Enquiries of Dr. Herschel.)

Some papers on physical subjects were also read before the Royal Society of London, but none were ever printed among their "Transactions." (Memoir of Sir John Leslie, by Macnay Napier, 1838; Chambers's Biography of distinguished Scotchmen; Gentleman's Magazine for 1833, taken from the 'Caledonian Mercury.'

LESING, GOTTGOTT EPHRAIM. Such is the number of this author's works and so great the variety of their subjects, that to give a satisfactory account of them in a year, at present, would require a volume, without touching either upon the incidents of his life or the personal anecdotes of the days when he was born at Kamentz in Upper Lusatia, of which place his father was pastor, on the 22d January, 1729. His attachment to reading displayed itself from his earliest childhood, and he was a devourer of books at an age when others are mere schoolboys. Of his extraordinary diligence in study, sufficient idea may be formed when it is stated that while at the school at Meissen he perused a number of classic authors besides those which entered into the course of his studies. From Meissen he went to the University of Leipzig, where, though he attended many courses of lectures on various branches of learning, his application was not very regular, his attention now beginning to be directed to other pursuits. He began here to form several literary friendships and connections, and acquired a decided taste for the theatre, much to the dissatisfaction of his parents and his sister, who warned him against it as being not only trifling but sinful; while it was also with the express wish of family that he should contribute any allowance for his support. This latter circumstance convinced Lessing that it was time for him to think of shifting for himself. Accordingly he determined to devote his talents to poetry, criticism, and belles-lettres, as that field of literature which had been least of all cultivated by his countrymen, and where, besides having few rivals, he might employ his pen with greater advantage to others as well as to himself. His first productions were one or two minor dramatic pieces, which were printed in a journal entitled Ernährung.

The departure of his friend Mylius for Berlin determined Lessing to follow him thither, as he hoped there to find himself more favoured by opportunities for literary undertakings. He left Mylius in Berlin and began publication, 'Beiträge zur Historie der Theater,' wherein they intended to take an historical and critical view of the drama throughout Europe, a subject then hardly touched upon. The work however was not carried on beyond its fourth number. About the same time he published some of his early poems, and set about studying Spanish, from which he shortly after translated Huarte's 'Examen de los Ingenios,' but he might easily have selected something more likely to fix public attention. Perhaps he showed still less judgment when, in conjunction with his younger brother, Johann Gottlieb, he commenced a Latin translation of Klopstock's Messiah, as if he should be rendering his mother tongue and his countrymen a service by diverting them from the Hebraic path which the Germans were in and gave such an impulse to the German language. Fortunately the brothers learned that a similar translation was undertaken by the Danish chaplain at Madrid, and they abandoned the project at this time. At Wittenberg, where his brother was pursuing his studies, he however returned to Berlin, and formed a close intimacy with Moses Mendelssohn and Nicola, who had a highly beneficial influence upon all the three. Six years passed, as one of his friends expresses, 'unhappily, especially when one pair of them is fixed upon what is at a distance, another upon what is closed by, and the third upon what lies between those extremes. It is not always that such literary partnerships are successful, but in this case there was a sympathy of mind, together with unity of purpose. One of the first results of
Lessing's and Mendelssohn's joint studies was the dissertation 'Popel als Metaphysiker' (1754), the object of which was to show that the English poet had no fixed philosophy, and to give mention of other literary connections, among whom Ramler stood high in his private esteem, and also of his various translations and less important productions, belonging to this period, we pass on to his "Missa Sam Sampson," the first attempt of domestic tragedy in German literature, and also one of the most successful that it has yet even produced. In vain did the critics object to it, that it was a dramatic nondescript, and that it was made up of reminiscences of English novels and plays; he cared the less while it had been produced: it was enough for them that they felt its power and its beauties: it accordingly not only excited a great sensation in Germany, but was translated in other countries. In the meantime he had written his first two most dramatic masterpieces, 'Minna von Barnhelm' and 'Emilia Galotti,' which, though composed in 1763, was not ultimately dismissed from the hands of its author till 1772, was an interval which, so far from having been passed unoccupied, astonishes us by the multitude and variety of the subjects on which Lessing then employed his pen.

In 1757 he and his friends Mendelssohn and Nicolai undertook the 'Bibliothek der Schönen Wissenschaften,' which may fairly be said to have been the best literary journal of the day. The first number was issued in 1758, and the last, in 1797. In 1766 his L'Estrange, a paper which now it must be referred to with both pleasure and profit for the valuable information and pieces of criticism which it contains. To this period, from 1753 to 1760, during which he resided at Breslau, among his literary productions 'Briefe,' and his "Letters on Literature" (1759), a life of Sophocles, after the manner of Bayle, and a translation of Diderot's dramatic pieces. From 1760 to 1765 Breslau was his residence, he having accepted the appointment of government secretary to General von Faubrunn. Here he found himself quite in a new sphere, very advantageous in some respects but in others the reverse; for, greatly to the astonishment of all, he began to addict himself to play with an eagerness quite at variance with a philosophical temperance. If he selected a faro-pocket, at times an opera, and at times the faro-table, he probably suffered in health, for such was his agitation even while winning, that the perspiration would drop from his forehead. He did not however neglect his studies and his pen, but employed the latter on several antiquarian and literary subjects and topics of criticism. At length he gave up faro and his appointment; returned to Berlin, and the following year published his celebrated "Laocoön," the most finished of his prose works, although in 1750 his "Letters" was marked another literary triumph, namely, his 'Minna von Barnhelm,' and the succeeding one by his 'Dramaturgie' and the 'Antiquarische Briefe.' After this he was preparing to embark for an extended journey to Italy, when his friend Evert obtained for him the situation of keeper of the Wolfenbüttel Library (1770), of which celebrated and extensive collection, comprising about 10,000 MSS. and 200,000 printed volumes, he published an account entitled 'Wolfsbüttelsche Fragmente.' His 'Emilia Galotti,' which, after long remaining in an unfinished state, was completed and published in 1772, has been criticised as manifesting more of psychological study than of poetical impulse, to which objection it has been replied, that it could not be well if other dramatists were to follow Lessing's example, and trust more to such study than to poetical inspiration. His last drama, 'Nathan,' which was translated many years ago by the late William Taylor of Norwalk, was also almost the last of his literary productions. From that time, 1779, his health and spirits visibly declined very fast; he became subject to attacks of somnolency in such a degree that he was unable to rouse himself, or even keep awake in the society of his most agreeable companions. Whether or not, he did not, like Swift, expose a drivelier and a show, he at least affords another striking instance of great mental power succeeded by complete exhaustion, and that prematurely, for he had entered only into his 53rd year when he died, February 18, 1781.

Few writers who have written so much have written so carefully; and considered with regard to style alone Lessing's works had a most beneficial influence upon German literature; among them are several masterpieces of various kinds, including his admirable Fables; yet it is not so much for these as for what he did for their literature generally that his countrymen are indebted to him. He was the first who established the principles, and those artistic qualities in which it had till then been deficient.

His brother Karl Gotthelf Lessing (born 10th July, 1740), who published his biography and some posthumous pieces, in 1793, wrote several comedies, which, although more celebrated for their humour and liveliness and also exhibited considerable dramatic talent.

L'ESTRANGE, SIR ROGER, was born in Norfolk in 1616. Like his father, he was a royalist, and having been sent as a prisoner to Scotland in 1639. He was arrested by the emissaries of the parliament in 1644, and sentenced to be shot as a spy, but some delay having protracted the execution of this sentence, he managed to escape, in 1648, and attempted to raise an insurrection in Kent. This scheme failed, he fled the country, but returned in 1653, hoping to take advantage of the general act of amnesty. Cromwell having taken part, his hopes were realized, though this circumstance caused him to be tried with some suspicion by his friends the royalists. After the Restoration he was appointed censor of the press, and in 1665 he brought out a paper called the 'Public Intelligence.' He was devoted to the court, and on the approach of the Revolution of 1688 lost all his appointments.

His work consists of a vast number of political pamphlets, besides translations of Josephus, Cicero's 'Offices,' Seneca's 'Moralia,' Erasmus's 'Colloquies,' Aesop's 'Fables,' Quevedo's 'Visiones,' &c. &c. He is censured for having used no tact in serving his sovereigns, and for addressing his authors, but on a reference to Edward's low translation of Terence it will be found that this fault was not peculiar to L'Estrange.

In the first number of the 'Intelligence' appears the following notice to the diffusion of news, which is curious enough as coming from an editor of a newspaper, and as being inserted in the newspaper itself: 'I think it makes the multitude too familiar with the actions and counsels of their superiors, too pragmatical and censorious, and given to suspicion and distrust; and that it is something not without a specious and plausible right and licence to be meddling with their government.'

LETRIS, [Laridz.]

LE SUEUR, JEAN-FRANCOIS, a distinguished French composer, knight of the Légion d'Honneur, and director of the music of the Emperor Napoleon, was the descendant of an ancient family, and born in 1766. After having been Maître de Chapelle of several cathedrals in France, for which he composed a great number of masses, he also produced his five grand operas: 'La Caverne, Paul et Virginie, Télémaque, Les Barudes, and La Mort d'Adam, all of which display, more or less, a vigour of imagination, a good sense of style, and a judgment in execution, which in point of music is superior to those of no other authors, but on a reference to Handel's low translation of Terence it will be found that this fault was not peculiar to L'Estrange.'

LE THERAG, a state of unnaturally deep and prolonged sleep, a condition intermediate between the sleep of health and complete coma. If not the result of unusual fatigue, it is often an alarming symptom, indicating congestion of the brain and a disposition of the nervous system to giving attack of that disease. [Apoplexy; Coma; Sleep.]
it is permitted by law. But a power to receive money and to give releases, or even to transact all business, does not authorize the attorney to negotiate bills received in payment. In fact all written powers, such as letters of attorney or letters of instruction, receive a strict interpretation; the authority being necessarily confined to that which is given in terms, or is absolutely necessary for the execution of the authority so given into effect. An attorney, unless power be specially given him for that purpose, cannot delegate his authority to appoint a substitute, and, generally speaking, the words of the attorney, after giving the particular authority, do not enlarge it.

The authority must be executed during the life of the principal, or, if the act done is considered to be in every respect his act.

Powers of attorney are generally executed under hand and seal, and there is an authority to bind the principal by deed, and, where the attorney has an authority to bind the principal by deed, it is essential that they should be so executed. When the agent signs any instrument which is to bind his principal, he must sign it in the name of the principal, and not in his own.

A power of attorney, unless it be given as a security, is revocable at pleasure, either by the personal interference of the principal or by his granting a new power to another person. But if the power has been given as a security, it has been decided that it is not revocable; and possibly, though it has been decided that a power of attorney coupled with an interest is revocable by the death of the grantor, yet if it authorize the agent to act in the name of the grantor, his execution, &c., it may be held that such a power, when given as part of a security, is not revocable, and possibly, though it has been decided that a power of attorney coupled with an interest is revocable by the death of the grantor, yet if it authorize the agent to act in the name of the grantor, his execution, &c., it may be held that such a power, when given as part of a security, is not revocable, and possibly, though it has been decided that a power of attorney coupled with an interest is revocable by the death of the grantor, yet if it authorize the agent to act in the name of the grantor, his execution, &c., it may be held that such a power, when given as part of a security, is not revocable, and possibly, though it has been decided that a power of attorney coupled with an interest is revocable by the death of the grantor, yet if it authorize the agent to act in the name of the grantor, his execution, &c., it may be held that such a power, when given as part of a security, is not revocable, and possibly, though it has been decided that a power of attorney coupled with an interest is revocable by the death of the grantor, yet if it authorize the agent to act in the name of the grantor, his execution, &c., it may be held that such a power, when given as part of a security, is not revocable, and possibly, though it has been decided that a power of attorney coupled with an interest is revocable by the death of the grantor, yet if it authorize the agent to act in the name of the grantor, his execution, &c., it may be held that such a power, when given as part of a security, is not revocable, and possibly, though it has been decided that a power of attorney coupled with an interest is revocable by the death of the grantor, yet if it authorize the agent to act in the name of the grantor, his execution, &c., it may be held that such a power, when given as part of a security, is not revocable, and possibly, though it has been decided that a power of attorney coupled with an interest is revocable by the death of the grantor, yet if it authorize the agent to act in the name of the grantor, his execution, &c., it may be held that such a power, when given as part of a security, is not revocable, and possibly, though it has been decided that a power of attorney coupled with an interest is revocable by the death of the grantor, yet if it authorize the agent to act in the name of the grantor, his execution, &c., it may be held that such a power, when given as part of a security, is not revocable.

A letter of attorney is also in general revoked by the bankruptcy of the principal, unless it is coupled with an interest.

(Paley's Principal and Agent, and the various treaties on mercantile law.)

LETTERS-PATENT (In Law), the king's letters, sealed with the great seal. These grants, says Blackstone (Commentaries, &c.), General authority, under the names of lands, houses, liberties, franchises, or anything else that can be granted, are contained in charters or letters-patent, that is, open letters, letter-patent. They are so called because they are not sealed, but open to view, with the great seal pendant at the bottom, and are directed to the king by the king to all his subjects at large. Letters-patent, in the time of Queen Elizabeth, as well as in several preceding reigns, were not unusually obtained for purposes of mere monopoly.

They are now frequently granted under the royal authority as the reward of ingenuity, and are in some cases the only means by which a man can secure any compensation for a discovery, or for the labour and expense which he may have expended in perfecting the invention. The consideration of the legal rights of patentees, and of the modes in which they may be acquired and secured, properly belongs to the head of Patents. At present it may be sufficient to refer the reader to Collier's Essay on the Law of Patents for New Inventions, to which are prefixed two chapters on the general history of monopolies, and on their introduction and progress in England to the time of Oliver Cromwell, 8vo., Lond., 1683; to Hand's Law and Practice of New Inventions, 4to., Lond., 1723; to Godson's Practical Treatise on the Law of Patents, 8vo., Lond., 1823, with the Supplement, 8vo., Lond., 1822; and Rankin's Analysis of the Law of Patents, 8vo., Lond., 1809.

Many letters-patent have been granted by the king to the founders of schools and other charitable endowments, empowering the donor to make rules and ordinances for the government of his charity, and constituting into a body corporate those persons and their successors whom the founder should choose or nominate.

LETTER-COURTS (Latin: curia literata, or garden lettuce) is one of the principal kinds of vegetables used for salads. It has been introduced and cultivated in this country for nearly three centuries, but, like many other domesticated plants, its origin is unknown. De Candolle supposes it to have been brought from India, for his opinion upon its supposed identity with the Lactuca bicolorata of Linnaeus. It is now found wild in the mountains of Nepal. The names of several of its varieties indicate their having come to us from the Greek Archipelago and the coast of the Levant; and one of the two divisions into which this genus is usually classified consists of those of an erect oblong form of growth. The other division, together with some forms belonging to a roundish, flattened, or spreading form, is termed by some of Colchicum lettuces. It has been selected for the following varieties, let us see the best.

The excellence of lettuces consists in their being crisp and tender; their growth should therefore be conducted as to sustain no check or interruption. If their quick vegetation is stopped by such causes as excessive drought, over-crowding in the seed-bed, or improper transplanting, they will in consequence either run to seed or become tough, and their juices at the same time will acquire an acrid quality.

The ground intended for the seeds should be fresh dug, well manured, and mellow. The principal summer crop should be sown in March and April, because the weather is covered. If the plants are intended to attain their full perfection before they are sown, they must be thinned out to distances of nine inches square in the case of the small cabbages varieties, and the larger sorts should be allowed at least a foot each way. In transplanting, the above distances are likewise applicable, and the operation should be performed, if possible, in cloudy weather; but at all events it must be done before the plants are too old, or they are in the least overcrowded; for when they are drawn, or if they have once been thinned, their growth is lengthened, which, in dry weather, will sometimes happen when they are yet in a small state, it is useless to transplant them. It is of importance that the soil in which they are grown should neither be too wet nor too dry. Where the breadth to be planted is not so great as to render the expense of labor an object of consideration, instead of making holes for the plants with a dipper, it is better to form a small trench, with a perpendicular cut next the line against which the roots are to be deposited. Having done this, water should be given, but not at any one time so extensively as to crowd the plants at the root of each plant, but over the whole of the ground.

The Cos lettuces require to have their leaves tied together moderately close with a strip of matting, for the purpose of assisting their blanching and rendering them more crisp and delicate. This should be done about a week previous to their attaining full perfection. The Paris Cove Cos requires less assistance in this way, because both the tops of its leaves are concave, and successively apply themselves closely to each other. Successive sowings are requisite to be made occasionally during the summer. Those plants intended to stand the winter should be sown in the end of August or beginning of September; and when fit, should be transplanted to the bottom of walls or other places having a south aspect, or to the sides of slopes or ridges made for the purpose, over which a protection of mats is supported on both sides. The demand of Cos is such as to require greater security, recourse must sometimes be had to frames or pits. The first full supply from the open ground is best obtained by sowing under glass on a decayed hot-bed in the second week in October. When the plants come up they should be thinned regularly till the bottom is covered. The air should be admitted when the state of the weather will permit, and when mild the plants should be fully exposed; but the slightest frost should be guarded against. Very little water will be required at this stage. All sorts of damp are to be dreaded, and therefore every favourable opportunity of air should be taken for the admission of air, provided it is not saturated with moisture, unless when too low a temperature would render such proceeding injurious. A full exposure to air, both night and day, is of great importance at this time previous to planting out in the open ground, which operation may take place in February, if the weather then permits.

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prove favourable. A reserve should be kept in the frames in case of severe frost occurring after the plantation has been made.

**LEUCADIA. [SANTA MAURA]**

**LEUCHTENBERG** is a lordship in the kingdom of Bavaria, which has an area of 54 square miles, and a population of 18,953 inhabitants. Till 1862 it was a landgraven, and the prince of which had a seat and vote in the Diet of the Empire. It is called after the ancient mountain castle of Leuchtenberg, in the village of that name, the original seat of the landgraves. The male line becoming extinct in 1646, the country fell to Bavaria. In 1817 the late king of Bavaria, Maximilian Joseph, gave it, with the principality of Eichstädt (together 215 square miles, with 24,000 inhabitants) to his son-in-law Eugene Beauharnais, who assumed the title of Duke of Leuchtenberg, and surrendered to the king of Bavaria the sum of five millions of francs, which the king of Naples was to pay him for his estates in that kingdom. The title of royal highness was conferred on the duke and his successors, according to the order of primogeniture, and the rank of princes and princesses of Leuchtenberg, with the title of serene highness, on the other members of the family. The dukes of Leuchtenberg were also declared capable of succeeding to the throne, in case of the king of Bavaria dying without issue, in the male line, on the other hand, on the extinction of the male line of the house of Leuchtenberg, its possessions return to the crown of Bavaria, on the payment of an indemnity of 3,262,312 Rhensian florins to the female line. [Eichstädt.]

**LEUCIN,** a name given by Bracoonot to a substance obtained by the action of dilute sulphuric acid upon fibrin, which dissolves in it when greatly heated. The solution is to be mixed with twice its weight of sugar and boiled for nine hours; ammonia is thus formed, which combines with the sulphuric acid, and the other principles of the fibrin give rise to three different substances from which the leucin is obtained, in an insoluble state by precipitation with carbonate of lime, and the subsequent action of alcohol, and other tedious operations. Leucin is white, pulvérulent, very soluble in water and crystallizable. It is only slightly soluble in alcohol, and when boiling it dissolves more than it can be mixed with water. The crystals, when heated to above 212°F, fuse and suffer partial decomposition and exhale an odour of roast meat; one portion sublimes without undergoing alteration, in the form of small crystalline grains, which are white and opaque; whilst another part is decomposed and yields water, ammonia, and a little empyreumatic oil.

The aqueous solution of leucin is not precipitated by sub-acetate of lead, nor in general by any other metallic salt, except nitrate of mercury, which throws it down completely in the form of a white precipitate, but which on standing becomes a rose-red colour. It has not been analyzed. With nitric acid it forms a curious compound, which Braconnot calls NITROLEUCIC ACID.

**LEUCIPUS,** a Grecian philosopher, is generally regarded as the original propounder of what has been called the atomic philosophy. The time and place of his birth are unknown; he was the disciple of Zeno and the teacher of Democritus, and was born, according to Diogenes Laert. (fz. 30), either at Elis, or the island of Melos. None of his writings have come down to us, with the exception of a few fragments of a treatise 'On Mind,' which have been preserved by Stobaeus. Some account of his philosophy is given by Diogenes Laert. (fz. 30), and by Plutarch in his 'De Anima,' i. 2; Plutarch, De Placitis Philos., c. xvii., p. 883 E.; Cicero, De Nat. Deor., i. 84; Lacantius, Divit. Inst. iii. 17; De Ira Dei, c. 10; Fabrici Bibliothecae Graecae, vol. ii., p. 659, 659, ed. Harles; Byule's Dict.; and the articles Atom and Democritus in this work.

**LEUCI/SCUS,** a genus of fishes of the family Cyprinidae, and section Abdominales. This genus, which was established by Klein, contains numerous species, of which the **Roe** of the British lakes is an example. The characters which distinguish them from others of the Cyprinidae, or Carp tribe, consist in the comparative shortness of the dorsal and anal fins, and the want of strong spiny rays at the commencement of either, the simple lips, and dentition. Of the various species of Leucicus are divided into two sections, according to the position of the dorsal fin. Firstly, those in which this fin is situated immediately above the ventral, as in the **Roe,** and, secondly, those species in which the dorsal fin is situated even between the ventral and anal, as in the **Chub, Rudd, Bleak, &c.**

The **Rooch** (Leuciscus rutilus, Cuvier) is common in most parts of Europe, swans in large shoals, and frequents rivers, lakes, &c.; preferring somewhat still and deep waters, and sandy or muddy bottoms. It attains from fifteen to twenty inches in length. The length of the head, compared with the whole length of the fish, is as one to five; the depth, at the commencement of the dorsal fin, to the body behind, as two to three; the number of the fin-rays are—dorsal, 12; pectoral, 17; ventral, 9; anal, 13; and caudal, 19. The scales are large, and the number forming the lateral line is 43; the number of scales in the oblique line is 11; the number of tail-ray in the dorsal fin is 7; and in the caudal, 19. The dorsal fin becomes rather behind the middle of the body, whereas in the **Rooch** it is exactly half way between the nose and the base of the tail fin. The colouring of the upper part of the head and back is dusky blue, becoming paler on the sides; the body, as a whole, is shaded with silvery white on the belly. The dorsal and caudal fins are pale brown; the pectoral, ventral, and anal are almost white, but tinted with pale red. The fin-rays are: dorsal, 9; pectoral, 17; ventral, 9; caudal, 19. The habitats of the **Dace** are very similar to those of the **Rooch.** It is found in Italy, France, and Germany, as well as our own country, generally frequenting the clear deep water of quiet streams. The **Dorbole** (Leuciscus dorbole, Cuvier), says Mr. Yarrell, 'is found in the Oder, the Elbe, the Weser, and the Rhine, as well as in the smaller streams which run into them.' As yet however but one specimen has been found in this country, and was fortunately caught by the author of the History of British Fishes, while fishing in the month of August, 1831, in the Thames, below Woolwich. It is of a slender form, and the scales are of moderate size, fifty forming the lateral line, above which there are seven in an oblique line under the dorsal fin, and below the lateral line there are twenty. The length of the head, compared with that of the head and body alone, is as two to nine, and the depth of the body is equal to the length of the head. The dorsal fin commences about half-way between the anterior edge of the eye and the base of the tail fin. The colouring is the same as in the **Dace,** excepting that the pectoral, ventral, and anal fins are pale orange-red. In the number of the fin-rays it agrees with the **Dace.**

The **Graining** (Leuciscus lanceolatirostris, Yarrell). Pen- appears to be the first author who noticed this fish, but its characters were never clearly defined until Mr. Yarrell's account appeared in the 'Transactions of the Zoological Society.' (1830, Aug. 5, p. 5, fig. 1.) Mr. Agassiz, having examined the species recently, has only recognised it as an inhabitant of some of the lakes of Switzerland. In this country it appears to be chiefly, if not wholly, confined to the Mersey and some streams connected with it, where it is met with in considerable abundance.

The adult Graining is from about seven to nine inches in length: the length of the head, compared to the whole length, is about one to six; and the depth of the body, compared to the whole length, is as one to four. The nose is more rounded than in the **Dace,** the eye is rather larger; the pre-operculum is less angular, the dorsal line is less convex, and the scales are rather larger and wider. The scales of the lateral line have the various numbers of the point of the nose and the base of the tail-fin. There are forty-eight scales in the lateral line, those in the oblique line from the dorsal fin to the lateral line are eight in
number, and below this line to the ventral fins there are noted.

The top of the head, the back, and upper part of the sides are of a pale dull colour tinged with bluish-red, separated from the lighter-coloured inferior parts by a well-defined boundary-line. The irides are yellowish-white; choanae and gill-covers shining silvery white, tinged with green. The thickness is half-way between the eye and the end of the dorsal fin; the eyes are—dorsal, 9; pectoral, 17; ventral, 10; anal, 11; and caudal, 19.

The Ides (Leuciscus idus) Cuvier, a species which is found in North and South Dordogne, and in other parts of Europe, is said to have been taken at the mouth of the Nith. Its form is somewhat bulky, compared with the other species here described. The head is large, and appears somewhat truncated; the muzzle blunt; the mouth large and deep; the teeth large, and also with the other species of this extensive family; the upper jaw rather longer; the eye of moderate size; the dorsal fin convex; abdominal line almost straight; the scales of the body large; the lateral line curved in its descent from the upper edge of the operculum to the centre of the body. The fin-rays in number are: dorsal, 10; pectoral, 17; ventral, 11; anal, 13; caudal, 19; vertebrae, 41.

In colour the irides are straw-yellow, the pupils black; fancied to be equal to one-fifth of the fish's size. The mucus is somewhat obesurate, and the gape large. The scales are large; the number forming the lateral line is forty-four. Above there are six scales in the oblique line to the yellow; all fins pale yellowish-white. The fin-rays are—dorsal to the ventral fin. The dorsal fin commences halfway between the point of the nose and the base of the tail fin; and the ventral commences in the same vertical line as the dorsal. The fin rays are—dorsal, 10; pectoral, 17; ventral, 9; anal, 11; and caudal, 19. The colour of the upper parts is dusky green, the sides of the body and belly silvery-white; the lateral scales are dotted with black; the cheeks and gill-covers there is a golden hue; the sides are very pale yellow; dorsal and caudal fins dusky; pectoral pale; anal and ventral fins tinged with red, with the exception of the two or three last rays.

The Chub (Leuciscus cephalus) Flém. is of a moderately elongated and thick form. The greatest depth of the body is contained four times and a half in the entire length, and is one-fifth of the tail. The mucus is somewhat obesurate, and the gape large. The scales are large; the number forming the lateral line is forty-four. Above there are six scales in the oblique line to the yellow; all fins pale yellowish-white. The fin-rays are—dorsal to the ventral fin. The dorsal fin commences halfway between the point of the nose and the base of the tail fin; and the ventral commences in the same vertical line as the dorsal. The fin rays are—dorsal, 10; pectoral, 17; ventral, 11; anal, 13; and caudal, 19. The colour of the upper parts is dusky green, the sides of the body and belly silvery-white; the lateral scales are dotted with black; the cheeks and gill-covers there is a golden hue; the sides are very pale yellow; dorsal and caudal fins dusky; pectoral pale; anal and ventral fins tinged with red, with the exception of the two or three last rays.

The Chub is common in many of the rivers of this country, often frequenting holes near the roots of trees. It lives in schools with eels and worms, spawns in April and May, and rarely attains a weight exceeding five pounds.

The remaining species of Leuciscus belong to the second division; that is to say, they have the dorsal fin placed above the intervening space between the anal and the ventral fin.

The Rud, or Red-Eye (Leuciscus erythrophthalmus, Cuvier), somewhat resembles the Roach in form; its body however is higher and thicker, and is distinctly raised at the fore part of the dorsal fin, so as to form an obtuse angle. The greatest depth of the body is rather more than one-fourth of the entire length, and the head is one-fifth; the thickness is not half the depth. The snout is obtuse, and the mouth small, the lower jaws slightly exceeding the upper. The dorsal fin is placed one-fifth of the fish's length, and is contained in the lateral line is about forty. In an oblique line ascending to the dorsal fin there are seven, and below the lateral line to the ventral there are four. The dorsal fin commences halfway between the point of the nose and the end of the shorter tail-rays. The fin rays are—dorsal, 10; pectoral, 15; ventral, 9; anal, 13; and caudal, 19. The upper parts are of an olive-coloured, tinged with green and blue; the sides and the belly golden-orange; irides olive and transparent. The anal and ventral fins tinged with red, excepting two or three of the last rays.

The Rud is found not uncommonly in rivers and other deep waters in various parts of England. Spain is its native place. This species feeds upon worms, molluscs, and gelatinous substances.

The Aspurn (Leuciscus aspartus, Cuvier), a beautiful species, first described by Mr. Yarrell, from specimens collected near Knowsley in Lancashire, appears to be quite different from the Roach in shape, but is more tapering anteriorly and posteriorly, and is at once distinguished by its colour, which is slate-blue above and on the sides of the body, with the lower parts silvery-white, and by the position of the dorsal fin. This fish commences halfway between the eye and the end of the fleshy portion of the tail. The fins are white, the dorsal and caudal inclining to dusky. The greatest depth of the body is rather more than the entire length, and the head is one-fifth; the thickness is not half the depth; the number contained in the lateral line is about forty-two. In an oblique line, from the dorsal fin to the lateral line, there are seven scales, and below the lateral line to the origin of the ventral there are three. The fin rays are—dorsal, 10; pectoral, 15; ventral, 9; anal, 12; and caudal, 19.

The only locality in England in which this fish is found is in the township of Knowsley. Mr. Yarrell however is informed by M. Agassiz that it is an inhabitant of some of the Swiss lakes.

The Bleak (Leuciscus alburnus, Cuv.) is of a more slender and elongated form than either of the preceding. The tail is very long and deeply forked. The greatest depth of the body is about one-fifth of the entire length, and the greatest thickness is about half the depth: the lower part projects beyond the upper. The scales are of moderate size; the number contained in the lateral line being about forty-eight. The dorsal fin commences halfway between the anterior edge of the tail, and the end of the last rays of the tail: the anal fin commences in a vertical line under the base of the last ray of the dorsal, and occupies half the space between its commencement and the base of the fin rays are—dorsal, 10; ventral, 17; anal, 9; and caudal, 19. The general colour is silvery-white, which is shaded into an olive-green on the upper parts: all the fins are whitish; the irides are yellow.

The Bleak is a small species, rarely attaining eight inches in length, and is usually about six or seven inches long. It is common in many parts of Europe, as well as of this country, usually occurring in the same streams as the Roach and Dace, it游泳s in great shoals, and spawns in May. The position of the fin, and colour of the eye and fins, render it easy to distinguish the species from the Dace, which it approaches nearest in general appearance.

The Minnow, or Minnow (Leuciscus phoxinus, Cuvier), is also a small fish, but more elongated, and attaining a length of one foot six inches. It is common in many parts of Europe, and is always to be found in the same streams as the Roach and Bleak, but very seldom in the same shoals. It is a very hardy species, and is found in England in the numerous rivers and streams of that country.

The Minnow is very variable in colour, and is always placed in one of the larger families of the Fishes. It is sometimes found with the Roach in the same shoals, and is always to be found in the same streams as the Bleak, but very seldom in the same shoals. The Minnow is a small fish, but more elongated, and attaining a length of one foot six inches. It is common in many parts of Europe, and is always to be found in the same streams as the Roach and Bleak, but very seldom in the same shoals. It is a very hardy species, and is found in England in the numerous rivers and streams of that country.
It is the result of acute inflammation producing a deposition of lymph and in the layers of the conjunctiva, either with or without ulceration of its substance. In those cases in which there is merely an effusion of lymph on the surface, or between the superficial layers of the membrane, it is often re-absorbed on the cessation of the inflammation, and the lymph vessels recover its transparency. But when the disease is more extensive and more deeply seated, the probability of recovery is far less, and many such cases are incurable by any means at present known. The most efficient mode of treatment is that with astringent lotions, such as a solution of nitrate of silver, in the proportion of from one to five grains to the ounce of distilled water.

The subjects of Leuenhoek's labours were so numerous, that he can only briefly mention some of the most important of them. Some of the antagonists of Harvey objected to his doctrine of the circulation of the blood, on the ground that if the blood passed directly from the arteries to the veins, and still more, if it experienced a series of small tubes, this would be contrary to the opinion of Harvey, the passage of the blood was not described, and the importance of the discovery was reduced.

The latest investigations have proved the conclusions of this great microscopist to be nearly correct, and indeed it is only by observing that the currents of blood-globules pass in regular directions, that we can prove that they are canals with definite membranous walls.
the red blood. Fresh experiments made him change his
opinions, and in 1717 he showed that the brain and nerves
are fibrous structures, and that the blood-vessels glide be-
tween the fibres which compose these tissues. These ob-
servations very nearly agree with those of modern anat-omists. Leuwenhoek, in his letters (published in 1726),
which Leuwenhoek seems to have been deficient in was in
a clear knowledge of the difference of structure between the
cortical or grey and the medullary or white parts of the
brain. He supposed, and it was fibrous that he supposed that the former must be so also; whereas the
cortical substance is composed almost entirely of blood-
vessels connected by exceedingly fine cellular membrane,
as first stated by Leuwenhoek, and investing, as has been
suggested, as a protection of the medullary fibres. It is
now universally agreed that the medullary part of the
brain is composed of fibres.
Leuwenhoek examined the structure of the crystalline
lens, and his exactness the disposition of the layers which compose this part of the organ of vision; and
he embellished his description with several very good figures.
Much has been said concerning his investigation of the
well-known and celebrated spermatic animalcules, which
since the time of their first discovery in 1677 have excited
the curiosity and speculative fancy of many naturalists.
Haller states that Ludwig Hamm (a student at Leyden)
was the first discoverer of the seminal animalcules, in
August, 1677. Leuwenhoek claimed the merit of having
made the discovery in 1678. In the year 1678 Hartsanker
published an account of them, in which he professed to have seen them as early as 1674. A great
discussion has since been written upon them: Needum, Buffon,
Delaets, Czar (in the southern earth, or, that is, in the
experiments were made together), and Wagner, may be men-
tioned as those who have devoted most attention to these
curious little animals. Leuwenhoek minutely described
them, and fancied that when they arrived in the uterus they
irritated this organ, attracted the ovum, and communicated
life to the embryo which it contained. He also held the
animalcule to be of different sexes, and according as one
or other contained the ovum during fecundation, it determined
the sex of the offspring. Such notions as these require no
revulsion. The details of his observations on this subject
will be found in Buffon's "Histoire Naturelle."
Leuwenhoek would have made both more numerous and
more valuable discoveries, if he had possessed greater
erudition, which would have enlarged his ideas, and pre-
vented him from mistaking, as he did in some instances,
probabilities for facts. Thus he often fancied that he saw
what did not exist, and afterwards he persisted in his error.
Among other mistakes he considered that the villous or
unuous coat of the intestines, which he had seen, was in
fact the pulsation belonged to veins, and not to arteries.
Leuwenhoek's reputation was very extensive. When
Queen Mary was in Holland, she paid him a visit, and she
was greatly entertained by his curiosity. He presented
her with two of his microscopes. When the Czar Peter
the Great was passing through Delft in 1698, he sent two of his
attendants to request Leuwenhoek to pay him a visit, and
to bring his microscope with him. The philosopher, after
having shown his instruments to the emperor, exhibited to
him the curious phenomenon of the circulation of the blood
in the tail of an eel.
Leuwenhoek died at Delft in 1723. Besides his contribu-
tions to the "Philosophical Transactions," he published a
series of 46 volumes of the "Verhandelingen" of the Academ-
ies, which were collected and published separately in Dutch
at Delft and Leyden; they were also translated for him into
Latin, and printed at Delft, in 4 vols. 4to, in 1695-99. An
English translation was made from the Dutch and Latin
editions in 1780-1800, by Mr. Samuel Hoole, in 4to. At
his death he bequeathed to the Royal Society of a small
Indian cabinet, in the drawers of which were con-
tained thirteen little boxes or cases, each holding two micro-
scoopographs, one for the left and one for the right eye.
The lenses but the whole apparatus were made with his
own hands; each microscope had an object placed before it,
of which there was an accompanying drawing made by him-
self. (Philosophical Transactions for 1723; Biographie
Universelle, &c.)

LEUZE. [HAINAUT]
LEVANT, LEVANTE, an Italian word which means the
East, and which is also commonly used, especially among
seafaring and commercial people of the countries bordering
on the Mediterranean, to designate the eastern or Asian
shores of that sea, namely, those of Syria and Asia Minor,
the harbours of which are styled 'Scale di Levante,' in
French 'Échelles du Levant' ('stairs of the East'), Smyrna,
Phœnicia, Ararat, the other islands near the coast of Asia,
are included in this denomination. The inhabitants of those countries, and more
particularly that mixed population which is found in the
seaport towns, are known as Levantins or shore. The
other Levantins, or merchants, are called by the
Italians 'Levantini,' and Levantins by the French. The
Levantins, or Franks, as they are also called, are distin-
ghuished from the Greek rayaus, or subjects of the Porte,
as having been the protectors of the Greek language.
They speak Greek among themselves, but their medium of
intercourse with European seamen and traders is a very
corrupt Italian mixed up with modern Greek words, which
is known by the name of "Lingua Franc." French is the
language of refined society. The Levantins, at least the
better sort of them, are a mild, easy-tempered, and sociable
people, deficient in spirit and instruction, without strong
feelings or passions, and having no distinct national character.
Their women are generally handsome. The Levantine or
Frank population of Smyrna amounts to five or six thousand;
most of them are of the Latin or Roman church. (Macfar-
lane, Constantinople in 1829, &c., ch. v.)

LEVANTINA, VAL, Livien Thal in German. [TICINO,
Carver.]•

LEVELLING is the art of determining the heights or
depressions of points on the ground with respect to a spe-
cific or spherical surface coinciding nearly with that of
the earth. The height of a point is inconsiderable, with respect to a horizontal plane passing through some
given point on the ground.
In those extensive operations of this nature which are
connected with the researches of physical astronomy an
important contribution to the earth's diameter which is
nearest to the truth is of importance; but when the object
is merely to determine the profile of the ground for a canal
or a line of road, it is sufficient to consider the surface to
which the points are referred in the same plane.
The relative heights of a series of points on the ground
are obtained by means of their vertical distances from others
which, on the supposition of the earth being a sphere,
are equally distant from its centre; and these, which are
called level-points, must be found by an instrument
constructed for the purpose. Now a plane being supposed to touch the
earth at any given point, all the points in the circumference
of a circle described on that plane, about the point of con-
tact as a centre, will be level-points: consequently, if a
vertical telescope be directed along the vertical axis of the
instrument to which it is applied, its line of collimation
(which passes through the centres of all the lenses) may remain parallel to the horizon, any num-
ber of points being determined by the distances from the said axis, they are in the direction of the
line of collimation produced. The instrument alluded to
is called a spirit-level (SPIRIT LEVEL; THEODOLITE); and
by certain adjusting screws the line of collimation, or optical
axis of its telescope, is capable of being brought into the
position above mentioned, which is indicated by a bubble
of air remaining, during a complete revolution of the telescope,
in the middle of the tube containing the water or spirit.
The instrument for determining the relative heights of points on the ground in either of
the following ways, the first of which is the most simple,
and is frequently adopted. Choice is made of any conveni-
ent stations, A, B, &c., on the line of operation, and the
distances between them are determined either by actual
admeasuring or by computations founded on the data
afforded by a previous survey of the ground. The instru-
ment is then set up at or near the middle of the interval
between every pair of these points in the line of sight. When the
observer at the telescope, till it appears to coincide with the
intersection of two wires in the telescope, that intersection
having, by the adjustment of the instrument, been made
to coincide with the optical axis, or line of collimation
The points thus determined on the staves are represented by \( m \) and \( n \); and, from what has been said, these are level-points, or points equally distant from the centre of the earth. Therefore the heights \( Am \) and \( Bn \) being read on the graduated staves, the difference between them will give the relative heights of the ground at \( A \) and \( B \); that point, of course, being the highest at which the distance of the vane from the ground is the least. A similar process is repeated with respect to the points \( B \) and \( C \), the instrument being placed at \( B \), midway between \( A \) and \( C \); and the operation is to be continued to the end of the line on which the profile is required. It is customary to insert the heights \( Bn, Cy, \text{etc.} \), in a column headed *Profile*, in a sort of field-book, and the heights \( Am, Bp, \text{etc.} \), in a collar column headed *Distance*. The difference between the sums of the numbers in these two columns will be equal to the height of one extremity of the line above the other.

But it is very generally the practice, with the view of diminishing the risk of error arising from the imperfectness of staves, to execute a second of double levelling. This consists in placing the spirit-level successively at each of the two stations, as \( Y \) and \( Z \); and, having, by the screws, adjusted the telescope as before, let \( f \) be the horizontal line in a plane parallel to \( Y \) at \( Z \); and, with the telescope so adjusted, having obtained by means of the staff set up successively at each opposite station, it may be easily proved that half the difference between them will be equal to the height of the ground at one point, as \( Y \), above that at the other. This is however strictly correct only when the staves at \( Y \) and \( Z \) are considered as parallel to one another; but the error arising from their being in the direction of the earth's radius is quite insensible in any of the ordinary operations of this nature.

In using either of these methods therefore no correction on account of the earth's curvature is necessary; but when, from any circumstances, the spirit-level cannot be placed nearly mid-way between every two stations, and particularly when it can be placed only at one station, as \( Y \), the difference between the height \( Z \) of the visual ray at one station, and \( Y, T \), the height of the instrument at the other, will not, on account of the earth's curvature, be the correct relative heights of the ground at the two stations. Let \( Yz \) be an arc of the earth's surface, supposed to be spherical; let also \( Yt, Zv \) be in the direction of its radii, and let \( Yy, Z \), be a tangent to the curve at \( Y \); then \( Vz \) being parallel to \( Yv \), the difference between \( Zv \) and \( Yy \) (which may be considered as equal to \( Vz) \), will be the apparent height of \( Y \) above \( Z \); whereas the true height should be \( Zv \).

Now, from the known magnitude of the earth, the distance \( y, z \), between the tangent \( Yy \), and the arc, can easily be computed when \( Yz \) or \( Y \) is of any given length. If this length is equal to 100 yards, we shall have \( y = 0.02 \) inches.

Consequently, in a series of operations carried on in the manner above described, with station lines not exceeding 100 yards in length, the error in the relative heights at the end of one mile would be little more than one-third of an inch.

On ascending or descending a steep hill, no other method can be adopted than that of placing the instrument at one extremity of the station line and the staff at the other; but as these lines are then necessarily very short, the deviation above mentioned need not be regarded.

In the determination, on uneven ground, of the length of a base-line for the trigonometrical survey of a country, the relative heights of the ground, as \( A, B, C, \text{etc.} \), are, when found as above, serve for the reduction of the measured hypo-

In practice, the height of such objects is determined

...from the arc of the earth's surface at the level of the

...for the elevation of engines and the determination of the depressions or the heights of the masses of earth to be raised, when it is proposed to execute a canal or road. A right line being drawn to represent one parallel to the horizon, which passes through the highest and the lowest points of the natural ground; the heights or depressions of the remarkable points, as \( A, B, \text{etc.} \), with respect to such one, are obtained by additions or subtractions from the numbers in the field-book, and are, by a proper scale, set out from that line on others drawn perpendicular to it at intervals equal to the horizontal distances between the same points. The series of points thus obtained, being joined by hand or otherwise, give the figure of the required vertical section of the ground. In general, for the sake of distinctness, the scale by which the heights are set out is greater than that of the horizontal distances between the points.

When the difference of level only between two places is required, a rectilinear direction from one to the other is not considered as sufficiently accurate; but it is generally a little more perfect as the perpendicular distance is increased. The operation: a circuitous route is preferable when it presents fewer impediments from woods or marshes, or when the inequalities of the ground are of less magnitude.

Among the operations of levelling, which, within a few years, have been performed on an extensive scale, may be mentioned the series of levels taken across the lands between the Black and the Caspian seas, and between the latter and the lake Aral, for the purpose of determining the relative heights of those waters; the survey which, during the expedition of Colonel Chesney, were taken from Iskanderun on the Mediterranean to Birejik on the Euphrates; and near the Persian Gulf, between the latter river and the Tigris. To these may be added the extensive lines levelled in England and on the Continent for the several railways, which have been executed or are in progress; and the important work now being carried on, under the auspices of the British Association, in order to determine the difference between the levels of the waters in the English and Brusth channels.

**Lever, Loch.** [Kinross-shire.] **Lever** (levare, to lift up), the name of a common mechanical instrument, consisting of a simple bar of wood or metal, by fixing one point of which, called the fulcrum, a pressure at the end more distant from the fulcrum is made to counterbalance a larger pressure at the nearer end; or if both ends be equally distant from the fulcrum, equal pressures are made to balance each other.

The lever, considered as a machine, would require no further notice than a reference to the article **Power** for the correction of a mistake incident to the conception of this and other machines. But as one of the fundamental principles of mechanics receives its most simple form in its application to the common lever, this instrument assumes a degree of theoretical importance which will justify some discussion of the subject: and the principle of the lever, which often confounds with the lever itself, must be explained. Thus when it is said in popular writings on mechanics that all machines are reducible to the lever and the inclined plane (an assumption of startling character if we consider, for instance, the works of a common watch) it is meant that every mode of communicating or resisting pressure is explicable upon the principle of one or other of those machines.

The first explanation of the lever was given by **Archimedes**, and that in somewhat similar terms to the above, that while his method has always been the best for a popular view of the subject, it has never been surpassed, or even equalled, in rigor or purity, considered as a foundation for the science of statics.

...it assumes two principles; firstly, that when a system is in equilibrium, the state of rest will not be disturbed if...
tional pressures, such as compensate each other, and would by themselves produce no motion, be introduced or removed; secondly, that when a weight is made to rest by being attached to an immovable point (say it is suspended by a string), the point or the suspension undergoes pressure equal to the weight of the system, whatever may be the form of that system, or the dispositions of its parts. Every science must be founded upon some axiomatic assumption; and perhaps there is none which is better entitled to preference than the fact that a given weight, say a pound, suspended by a string, exerts the same pressure on the string whatever its shape may be; namely, a pressure equal to the weight of the body. This being premissed, a

As the pressure on the pivot A is the sum of the weights V and W, if the lever were suspended at A, by a string passing over a pulley, a counterpoise might be applied in the shape of a weight equal to the sum of the weights V and W. But when a system is at rest, the equilibrium is not disturbed by making any point an immovable pivot, and taking away any weight which may be there, leaving its place to be supplied by the reaction of the pivot. If then we were to make K a pivot, weights equal to W and V + W, acting downwards and upwards at L and K, would counterbalance one another, and since \( V \cdot K \cdot A = W \cdot L \cdot A \), add \( W \cdot K \cdot A \) to both sides, and we have \( (V + W) \cdot K = A \cdot W \cdot K \cdot L \).

In English treatises on mechanics, it is customary to call one of the pressures which balance on a lever the power, and the other the weight. Levers are thus distinguished as of the first, second, or third kind, according as the fulcrum, the weight, or the power, is in the middle.

LEVERIDGE, RICHARD, a celebrated singer towards the end of the 17th and beginning of the 18th centuries, for whom Purcell wrote most of his lute songs. He was in much request in all convivial parties, and as he possessed a talent for lyrical poetry as well as for musical composition, several of the songs by which he delighted his audiences where wholly the offspring of his own genius. Among these Dr. Burney mentions 'Ghosts of every occupation,' which he had heard performed by the bard himself. But we introduce his name here chiefly on account of his having set 'Water, Rhyme, and Song,' a Dutch song, to music, for tenderness, beauty, and fitness, has few rivals, and is one of the many that prove, to every candid mind, the English talent for music, though it is generally denied by foreigners, whose opinion on the subject, it has been, and continues to be, adopted by what is called the fashionable world in this country. During his life, Leveridge published several of his songs, in two 8vo volumes; and, though far from abstrusem, he reached the advanced age of 88 years, dying in 1759.

LEVITE. [Jews.]

LEVYNE occurs crystallized; primary form an acute rhombohed; cleavage parallel to its planes. Fracture conchoidal. Hardness 3.5. Scratches can be made. Colour and streak: white. Lustre vitreous. Translucent. Specific gravity 2.15. When heated, yields water and becomes opaque; swells up when heated in charcoal; with phosphoric salt gives a transparent globule, which contains a nucleus of silica, and becomes opaque on cooling. It is suspected to be merely a variety of clambite. It is found in Ireland, Farko, and some other places.

Analysis by Berzelius:

<table>
<thead>
<tr>
<th>Substance</th>
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<tr>
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<tr>
<td>Magnesia</td>
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<td>Water</td>
<td>19.30</td>
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LEWES, a market-town and parliamentary borough in the hundred of Lewes and county of Sussex, of which it is considered to be the capital, is 49 miles south-by-east from London. It is situated partly on the left bank of the Ouse, but the greater part of the town is on the right: it is on one of the elevated masses of chalk which compose the South Downs. The town is of Saxon origin, and had acquired its present name some centuries prior to the Norman Conquest. It is described from Lewes, a Saxon word denoting pastures.

The streets are well built, paved, and lighted with gas. The principal public buildings are the churches, the assize-hall, and the house of correction. The last was erected in 1793, and enlarged in 1817. It is built on the plan suggested by Dr. Howard, and contains between seventy and eighty capacious cells, of which fifteen are solitary. The assize-hall was erected in 1812, at an expense of 15,000l. It is 90 feet long and about the same in width, and comprises a council chamber, the civil and criminal courts, record rooms, and other convenient apartments.

Lewes is not incorporated. The management of the affairs of the borough is entrusted to two constables and two headboroughs, who are elected annually by the bur-
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LEY

gesses, and who are subject to the jurisdiction of the county magistrates. The summer and winter assizes are held here, and likewise the general quarter-sessions for the eastern division of the shire. The borough has returned two members by parish continuously from the reign of Edward I. The trade in wool was formerly extensive; but it is said to have declined, and grain and malt, sheep and cattle, are now the principal articles of traffic. The maritime trade of the town is carried on through Neath at the mouth of the River Tawe, about a mile below Lower. The fairs for cattle are held May 8 and the beginning of June; those for sheep on Sept. 21 and October 2. The average number of sheep sold annually at these fairs is estimated at 3,000,000. The town is a market, and has four rectories in the diocese of Chichester, and of the respective net annual values of 20£l., 250l., 1,166l., and 1,956l. The last two are in the patronage of the crown. The population of the borough in 1831 was 5,092.

The free grammar-school of Lewes and Southover was originally founded and endowed by Agnes Morley in 1512. There are usually twelve free scholars, children of the burgesses of Lewes, who receive gratuitous instruction in the classics, writing, arithmetic, &c., and are prepared for entering the universities. There is also an exhibition, founded by George Steers in the year 1800, for the children of the inhabitants, at either of the universities. It is tenable during four years, and in 1819 amounted to 35£l. The school is large and convenient, and well repaired. The master resides in the school-house, and receives from the funds of the charity about 90£l. annually. During several years preceding 1819 the free scholars had been placed in the schools of Chichester and Hampden. Lewes Castle, which stands upon a cliff, is supposed to have been built in the reign of William the Conqueror. Large quantities of Roman coin have been found here at different times, which renders it probable that Lewes was once a Roman station; but for an account of the antiquities, which are numerous, both in the town and suburbs, the reader is referred to Lee's 'History of Lewes and Bright-hamstone,' 1795.

(vi). Report of the Commissioners on the Education of the Poor, 1819; 'Boundary Reports; Lee's History, &c."

LEWIS, Kings of France. [Louis.]

LEWIS. [Ross Shires.]

LEWISHAM. [Kent.]

LEX. [Law.]

LEX MERCATORIA, or LAW-MERCHANT, in a general sense, denotes that body of the usages and customs of merchants which, having been adopted into the law of nations, has, in various countries, given some degree of protection to the trade and encouragement of trade, has been termed a branch of the Law of Nations. (Blackstone's Commentaries, vol. iv., p. 67.) In this general sense of the term, the law-merchant is at the present day extensively adopted in all civilised countries, and not adopted in a few portions of it, and the mercantile usages and customs common to all are few in number. Some centuries ago however, when the transactions of commerce were less complicated, and the rules by which they were governed were consequently simple, the provisions of the Lex Mercatoria appear to have been better understood and ascertained. Thus we find the law-merchant frequently referred to in general terms by our earlier English statutes and charters as a well-known system, and sometimes, even, from the ordinary law; as, for instance, in the stat. 27 Edw. III., 1335, it is declared 'that all merchants coming to the Staple shall be ordered according to the law-merchant, and the common law of the land,' and the charta Mercatoria, 31 Edw. I., 1304, directs the king's bailiffs, ministers, &c., 'to do speedy justice to merchants secundum legem Mercatoriam.'

Lord Coke mentions the law-merchant as one of the great roads by which the law of England is composed (Co. Litt., 11. b.), and the custom of merchants is said to be part of the law of England of which the courts are to take judicial notice. (Vincente v. Turner, Winch's Reports, p. 54.) Hence, however, it must be understood to apply only to general customs, as the rule does not comprehend particular or local usages which do not form part of any general system. The generality of the expression has caused much misunderstanding, and merchants in this country have been often led to conceive from it, that when practices or rules of trade have become established amongst them so as to amount to 'customs' in the common meaning of the term, they form part of the law of the land. This misconception has frequently led to improper verdicts in mercantile trials. It is quite clear however that the Lex Mercatoria is not a code of mercantile law, like the Lex et Consuetudo Parliamenti, merely describes a general head or division of the system. What customs or rules are comprehended under that division must always be determined in each case by the court.
LEYDEN PHIAL. [Electricity.]
LEYDEN, LUCAS VAN (whose proper name was L. Jacobs), called by the Italians Luca d'Ollandia, was born in Leyden in 1634. He was taught painting by his father, Hugh Jacobs, and afterwards by Cornelius Engelbrecht, a landscape painter. His talent was considerable, if not acquired great and deserved reputation throughout Europe. It has a library of 60,000 volumes and 14,000 manuscripts, a valuable botanical garden, an observatory, a museum particularly famous for its collection of natural history, &c. The number of students is now nearly 800. There are likewise many fine private libraries and museums, and various learned societies. In 1655, 4000 of the inhabitants were carried off by the plague; and in 1697 a boat, with 40,000 lbs of gunpowder on board, blew up, and destroyed a large portion of the finest part of the city: several hundred persons lost their lives on that occasion.

Leyden was the birth-place of Heinusius, Salmasius, Van Swieten, Paul Rembrandt, Peter Muschenbroek, and the notorious John Bockott the tailor, who in 1534 proclaimed himself chief of the Baptists and king of Münster.

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ship with the rhetorician, and bestowed upon him the dignity of quaestor. It is related by Eunapius (De Vit. Philosop. et Sopha, p. 133) that one of the emperors (probably Theodosius) gave him the honorary rank of prefect of the praetorium, but that it was declined by Libanius as a less illustrious title than that of Sophist. Libanius was alive in the year 390; since he mentions in a letter to Priscus (Ep. 866) that he was then seventy-six years of age.

Libanius was a pagan, and many of his works are written in defence of the heathen religion; yet this did not prevent his being on good terms with St. Basil. [Basil.] There is a certain air of holiness about him, which, even as early as Theodosius respecting the heathen temples, which has been translated into English by Dr. Lardner, in the eighth volume of his 'Credibility of the Gospel History.'

Most of the writings of Libanius have come down to us; they are chiefly declamations on the events of the Trojan war and the Athenian commonwealth. His oratorical works and moral treatises were published by Morer, 2 vols. fol., Par., 1666-27. The best edition of his declamations is by Reiske, 4 vols. 8vo, Leip., 1791. The letters which amounted to more than 1600, were published by Wolf, fol., Aust., 1738.

L'IBANUS. [SYRIA.]

LIBATION, an essential part of sacrifice among the Greeks and Romans. It consisted in the offering up of any liquid to the gods; or a libation of wine or water was also made at funerals. [Plut. Lec. Antiq. Rom., tom. ii., pp. 74, 75; Gyllard, Synag. Deorum, l. xvii.]

LIBAU. [COURLAND.]

LIBEL is a malicious defamation, expressed either in writing, or by signs, pictures, &c., tending either to blacken the memory of one who is dead, or the reputation of one who is alive, and thereby exposing him to public hatred, contempt, or ridicule. [Hawk. P. C.]

This species of defamation is usually termed written scandal, and from the considerations that the offence is committed upon greater deliberation than the mere utterance of words, which are frequently employed hastily and without thought, and that the effect of a writing continues longer and is propagated farther and wider than verbal defamation, it is generally treated as a more serious mode of defamation than slander. [Defamation; Slander.]

Words tend to make a man ridiculous or to lower him in the estimation of the world, amount to a libel; although the very same expressions, if spoken, would not have been slander or defamation in the legal sense. [Starkie.] Complete the libel by publication is necessary, that is, the communication of the libel to some person, either the person himself who is libelled or any other. The mere writing of defamatory matter without publication is not an offence punishable by law; but if a libel in a man's handwriting is found, the proof is thrown upon him to show that he did not also publish it.

There are two modes in which libellors may be punished, by indictment and by action.

The former mode is for the public offence, for every libel has a tendency to a breach of the peace by provoking the person libelled; the latter, by civil action on the case, to recover damages by the party for the injury caused to him by the libel.

On the criminal prosecution it is wholly immaterial whether the libel be true or false, inasmuch as it equally tends to a breach of the peace, and the provocation, not the falsehood, is the thing to be punished; and therefore the defendant on an indictment for publishing a libel is not allowed to allege the truth of it by way of justification. But in a civil action the libel must appear to be false as well as scandalous, for the defendant may justify the truth of it, if he can show that the plaintiff has received no injury at all.

But although the truth of a libel is no justification in a criminal prosecution, yet it is so far considered an extenuating that the Court of King's Bench will not grant a criminal information unless the prosecutor by affidavit distinctly and clearly denies the truth of the matters imputed to him, except in those cases where the prosecutor resides abroad, or where the imputations are so general and indefinite that they cannot be expressly contradicted by the libellor. This privilege extends also to printed answers for language held by him in parliament. And it has been said that a grand jury should be governed by the like rule in finding an indictment for the offence.

A fair report of judicial proceedings does not amount to a libel. A verbal publication of such proceedings before a magistrate may be punished as such.

A petition, containing scandalous matter, presented to parliament or to a committee of either house, and legal proceedings to maintain it, are not liable to be punished even if the facts may be, do not amount to a libel. But if the petition were delivered to any one not being a member of parliament, or the legal proceedings were commenced in a court not having jurisdiction of the cause, they would not be privileged.

Though the occasion of libel is a scandal, or a libel is served upon a person; and in some cases, when a libel is intended to be served on another person, the occasion of libel is a scandal. For the measure of damages in libel is, in all cases, the damages which the parties have sustained by the libel. The damages here, as in all cases of libel, are to be measured by the value of the character injured. The value of the character injured is the difference between the value of the character injured, and the value of the character injured, and the value of the character injured in the injured party.

The punishment in a criminal prosecution may be fine and imprisonment; and upon a second conviction for publishing a blasphemous and seditious libel, the court may sentence the offender to banishment for any term it may think fit. (1 Geo. IV., c. 8.)

The law of libel has been frequently complained of, and with some appearance of reason, particularly that part of it which prevents the defendant from giving evidence of the truth of what he has written in justification of the character of the libel. This is not the place for a discussion of the many reasons which have been adduced against the rule. Almost the only reason, if reason it can be called, which has been alleged in its favour is the one already alluded to, that the libel, whether true or false, equally tends to a breach of the peace; or, as it has been somewhat whimsically said, the being true makes the libel more likely to produce a breach of the peace. Lord Mansfield in a libel case held that, if the libel be false, the greater the libel. Much discussion has taken place upon this subject, but it seems questionable whether any improvement will be speedily obtained.

The liability to prosecution as well as to the writer, and so is the person who sells it, even though ignorant of its contents.

It does not seem to be generally known, that by the 28th section of the 38 Geo. III., c. 78, a bill of discovery may be supported against the editor of a newspaper or other person concerned in the publication or interested in the property thereof, to compel a disclosure of the name of the author of the libel, or of the name of any person connected with the publication against whom the party libelled may think proper to bring an action; and such a bill might also be maintained against any person suspected of being the author, which would compel him to discover on oath whether he did or did not write the libel in question.

LIBER, the inner bark of a plant, is a layer consisting of woody tissue, cellular substance, and vessels of the latex, forming a compact zone immediately applied to the wood. The wood of which it is composed quickly becomes thick-sided, by the addition of internal ligneous strata, the consequence of which is, that such tissue in this part is more tough than elsewhere. Hence it is usually from the inner part of the bark that the fustic dye is obtained, by steeping it in water, and then boiling it with wood ashes, or by steeping it in water which has been boiled with wood ashes. The dye is used for ropes is procured. It is said that certain exogens,
such as Menispermaceae, have no liber. (Comptes Rendus, v. 395.) In many plants a new layer of liber is formed annually, but this is by no means universal; on the contrary, the oak and the elm increase their liber slowly and irregularly.

It is asserted that the liber serves for the downward channel of the sap, just as the albumen does for its upward course in the alimentary tract. This assertion, if true, physiology, requires confirmation. There is no doubt that fluids descend through the bark of trees and rise through their wood; but whether the former takes place exclusively through the liber, and the latter through the wood, the tissue, the latexiferous vessels, or the cellular substance, is not proved. It may be doubted whether the whole of the mesophyll, or inner cortical layer, does not assist in this function.

LIBER REGIS, another term for the Valor Ecclesiasticus of the 26th Henry VIII.; the book containing an account of the valuation of the whole ecclesiastical property of England and Wales, in the state in which it stood on the eve of the Reformation.

By an act of the 23rd of Henry VIII., the payment of annates, meaning the first-fruits of bishoprics and archbishoprics, with all sums paid for palls, bulls, and the like, at the consecration of every new prelate, were restrained. This was followed by an act in 1545, for the purpose of saving such first-fruits of all dignities, benefices, and promotions spiritual, but also of an annual pension of the tenth part of all the possessions of the church, spiritual and temporal, to the king and his heirs, as supreme heads of the church of England. The king, or his certain purchasers, and the commissioners under this act made into the exchequer. This record, in full, except certain portions which have been lost, was published under the orders of the commissioners upon the regalia of the realm, in 6 volumes, 4to, London 1810-1834. An abridgment of it is preserved in the Office of First-Fruits, entitled Liber Valorum, and was the foundation of the Liber Regis, vel Thesaurus Rerum Ecclesiasticarum, by John Bacon, Esq., receiver of the first-fruits. The latter work also contains an account of such benefices as have been since discharged from any payment to the above revenues, on account of the smallness of their income. Queen Anne, as an act of royal bounty to the church, in the second year of her reign, gave up first-fruits and tenthings as a source of revenue; not back to the hands which had to render them; but to trustees who were empowered to administer them for the benefit of the poorer clergy. This grant was confirmed by act of parliament, 2 and 3 Anne, c. ii.

LIBERIUS was elected to succeed Julius I. in the see of Rome, A.D. 353. The Semi-Arians countenanced by the Emperor Constantius had slain the ascendant, and held the consistory of Milan. He consecrated Athanasius, bishop of Alexandria. As Liberius, together with some other Western bishops, refused to subscribe to this condemnation, he was arrested, by order of the emperor, and taken to Milan, where he had a conference with Constantius. The questions and answers in this conference are still extant in Constant's Epistola Romanorum Pontificum. The conference terminated in a sentence from the emperor deposing Liberius from his office, and banishing him to Beroea in Macedonia. The emperor caused Felix, a deacon at Rome, to be consecrated bishop. A petition was presented to the emperor by the principal ladies in Rome in favour of Liberius, but it was not till 358 that Liberius was restored to his see by the former missionary. The council of Milan approved in several letters the deposition of Athanasius, and subscribed to the confession of faith drawn up by the court party at the council of Sirmium. The weakness of Liberius had a mischievous influence upon many of the Italian bishops, and the council of Rimini openly countenanced Arianism; but it is not true, as asserted by some, that Liberius subscribed the Rimini confession of faith. He ended his career in orthodoxy, and died in 366. He was therefore regarded by later ecclesiastical historians. It is said that he had built the Basilica on the Esquiline Mount, which has been called Liberiana, from his name, and is now known by the name of Santa Maria Maggiore.

LIBERTINI. In the Roman polity persons were divided into freemen (liberi) or slaves (servi). Freemen again were divided into persons who were born in a state of freedom (ingenues), and libertini, or those who had been manumitted. (Gaius 1, 10, G. &c.; and compare Horace, Serm., 1. 6; v. 21.) A manumitted slave was called a 'libertinus,' with reference to the class to which, by the act of manumission, he belonged. It was sometimes said that the word was taken by the liberinus was the son of the 'libertus;' and such, according to Suetonius, was the meaning of the term 'libertinus' in the time of the censor Appius Claudius, and for some time after the meeting of the term 'libertinus' in aftertimes was what is here stated.

A manumitted slave might either become a full Roman citizen or a Latinus, or he might obtain no higher privileges than the class called Deditu. The grounds and conditions of this distinction are fully expounded by Gaius (l. 12, &c.). The three modes of manumission, by any one of which the freedman might obtain the rights of a Roman citizen, were the 'vindicta,' 'censura,' and 'testamentum.' The practice of manumitting slaves having become very common, and being productive of great inconvenience, various provisions in restriction of the power were imposed by the Lex Aelia Sentia, which passed in the time of Augustus. By this law, if a person manumitted a slave without his principal's consent, he was punished by the loss of his estate. It was also provided that the manumission be expressed in the presence of the rights of the patron, the manumission was void. By the Lex Furia (Fufa) Caninia, which was also passed in the time of Augustus, before the Lex Aelia Sentia, a man could only manumit by his testament the whole of his slave property. A wholesome tendency in a state where slavery existed, was repealed by Justinian's Legislation.

Though the sons of 'liberti' were ingenui, it appears from numerous passages of the Roman writers that they were not unfrequently exposed to the taunts and anes of those who could boast a pure descent from free-born ancestors. Horace says of himself, Quum redund omnis libertino patre natur. (Serm., i. 6, 46.)

When we consider that all slaves were brought from all parts of the world and were often manumitted, not because of the goodness of their character, but from many and insuficent causes, in addition to mere whim and caprice, it may be presumed that, as a class, the 'liberti' had not much to recommend them.

It appears from the definition of Gentilis, as given or sanctioned by the Pontifex S. a. (Cic. Top., 6), that a 'libertinus' could have no Gentis; but the doctrine of the libertitiae (gentilitiae), which was impressed upon the Romans, and its importance to the succession to the property of an intestate, had fallen into desuetude in the time of Gaius (ii., 17). Two inscriptions (Nos. 3024, 3029) in Orelli, probably of a late date, commemorate the fact of a freedman marrying his charles an

The relation between a freedman and his patronus is more properly discussed under the head of PATRONUS.

LIBERTUS. [LIBERTINI.] LIBERTY. The general nature of a liberty, as a portion of the royal prerogative in the hands of a subject, has been already shown under FRANCHISE. Liberties were at first chiefly granted to monastic and other religious establishments, in case of the concurrence of the royal grantors, or in testimony of their devotion to the church; and most of the antient franchises now in existence are derived from an ecclesiastical source. They were afterwards granted as means of strengthening municipal corporations.

The word from which 'liberty' is formed, liberty is a term of dignity, and not usually used in the general sense of a liberty, as a portion of the royal prerogative, a distinction is usually made between such liberties as have been actually exercised by the crown before the grant to the subject, and such as (being merely latent in the crown) are said to be created de novo upon their being granted. The former, when by escheat, forfeiture, or otherwise, they become again to the crown, are extinguished by merging in the general prerogative, and cannot afterwards be regranted as existing franchises: the latter still have continuance for the benefit of its subsequent grantee. To the former class belong such privileges as the right to have the goods of felons, &c., waifs, esras, deodands, and wreck, arising within the lands of the grantee; to the latter, the return of writs, the right of holding fairs and markets, the right to haggle within a tenement of the grantee; the right to hunt and hound within the lands of the grantee; and the right of 1

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and pleasant promenades. The streets are wide and straight and there is a good place or open space. There are seven gates, four toward the rivers and three toward the land; there is a little bridge of wooden arches over the Dordogne built of brick and stone; and a quay along the bank of that river, but vessels can lie also in the Isle. Vessels of 300 tons can come up with the tide, which rises 10 feet at ordinary times, and 15 feet at the equinoxes. There were several of the officers in religious attire in the Revolution. The population in 1831 was 8046 for the town, or 9838 for the whole commune: in 1836 it was reduced to 9714 for the whole commune. Some woollen stuffs, military accoutrements, and mulberry paper are made here. The principal trade is in wine, brandy, and salt, which last is sent up the Dordogne for the supply of the departments of Dordogne and Lot. A considerable quantity of corn and timber is shipped here for Bordeaux. There are several yearly fairs. The town has an agricultural society, an 'Atheneum,' a public library of 3000 volumes, a free school for navigation and drawing, a museum of natural history, and a botanic garden. There are an exchange, and several government offices for fiscal or judicial purposes; also a range of barracks, and a theatre. The environs of the town are fertile in corn and wine.

The arrondissement is subdivided into nine cantons, and 133 communes; it comprehends an area of 497 square miles, and had in 1831 a population of 107,514, and in 1835 of 107,464.

LIBRA (the Balance). In the older Greek writers the Scorpion occupies two constellations of the Zodiac, or rather the body of the animal occupies one, and the claws, chela (q.v.), another. This was because though the chela were certainly a part of the Scorpio, yet they are more mentioned (as by Aratus, for instance) by themselves, as if they formed a distinct constellation. The word chela had several significations; so that it may have been by simple miscalculation that the Romans (according to Hyginus, Virgil, &c.) gave the name of Libra to the part of the heavens in question, and drew back the claws of the Scorpion to make room for the scales.

* Libra is surrounded by Scorpions, Ophiuchus, Virgo, Centaur, and Pisces.

** Footnote:** The names and titles (Buzy's Florafran), thinking that history is 0.509Oersted and Bovard, Bayers, whereas in fact these states are in Bayers and Scorpios, and that is 0.318Oersted, and Lirain.
taurus, and Lupus. Its star $\beta$ is the vertex of an isosceles triangle, of which Arcturus and Spica (a Virginis) are at the vertices of the base. Its principal stars are given in the preceding page.

**LIBRARY.** The practice of forming collections of books would naturally commence as soon as books began to be multiplied. All the countries of the ancient world in which writing had received itself possessed libraries, which are as indispensable for the sustenance of learning as food is for the sustenance of the body. The high price of books while all books were manuscripts only made it the more necessary that public libraries should be provided for the purposes of study, seeing that the purchase of books was in most cases beyond the reach of private students. Yet we read of many collections of books made by wealthy private individuals for their own use, both among the Greeks and Romans. Among the most celebrated, and famous of the public libraries of antiquity were the library of the Ptolemies at Alexandria, the library of the kings of Pergamus, and that founded at Rome by the emperor Trajan, which he called, after his own name (Ulpian), the Ulpian Library. The greatest libraries of the middle ages were those of the Arabs, established in their various dominions in Asia, in Africa, and in Spain, and the imperial library at Constantinople. Of all these denominated libraries only have come down to our times. The most extensive existing libraries in the several countries of modern Europe are: in Italy, the Vatican Library at Rome, the Magliabecchian Library at Florence, the Ambrosian at Milan, the library of Bologna, the University Library at Padua, the University Library of Genoa, and the Mark Library in the north of Spain, that of the Escurial; in France, the Royal Library at Paris, the Mazarin Library, and those of the Arsenal, of St. Geneviève, and of the Institute, in the same city, and the public libraries of Lyon and Bordeaux; in Germany, the Imperial Library at Vienna, the royal libraries of Berlin, Dresden, and Stuttgart, and the University Library of Göttingen; in Holland, the public library of Amsterdam, and the University Library at Leyden; in Russia, the Imperial Library at St. Petersburg; in Denmark, the Royal Library at Copenhagen; in the United Kingdom, the Bodleian Library at Oxford, the University Library of Cambridge, that of the British Museum in London, the Advocates Library in Edinburgh, and that of Trinity College in Dublin. Most or all of these collections will be found noticed under the names of the places where they exist. In the United States of America, according to the 'Encyclopaedia Americana,' the principal libraries are, or were in 1824, that of Harvard College, containing 36,000 volumes; the Philadelphia Library, containing 27,000; that of the Boston Athenæum, containing 26,000; that of Congress, containing 16,000; and that of Charleston, containing 14,000 volumes.

**LIBRATION,** a balancing motion, in which there is a position on one side and the other of which a body vibrates being in fact the same in meaning as oscillation. This term is however particularly applied to a small irregularity, compounded of the moon's rotation round her axis and her orbital motion, by means of which her visible hemisphere is not always quite the same.

The mean revolution of the moon round her axis is the same period of time as her mean revolution in her orbit. If both motions were equal the moon would always present the same face to a spectator placed at the centre of the earth, on condition that the plane of her equator passed through the centre of the earth. None of these conditions being satisfied the variations being small and periodic, the consequence is that a small portion of the moon's surface in the eastern and western edges, and also in the northern and southern, is alternately visible and invisible. There is perhaps no subject in astronomy so difficult that a man who is not familiar with solid geometry; and the subject is not of sufficient importance to deserve any detail of illustration.

**LIBYA.** (African)

**LICENTIATE IN MEDICINE** is a physician who has a licence to practise granted by the College of Physicians, but medical graduates of Cambridge or Oxford may practise in the provinces independently of the college licence.

**LICHANOTUS,** Illiger's name for a genus of Cheiro- pods or Quadrupadane (Indris of Lacépède, Geoffroy, and others) belonging to the family Lemuridae.

The Indris are inhabitants of Madagascar, and two species only seem generally recognised, namely, Indri breviceudactus of Geoffroy, Lemur Indri of Gymelin; and Indri longicaudatus of Geoffroy, Lemur laniger of Gymelin, Indri laniger of Fischer. Cuvier indeed recognises but one species, namely, that first above named, and says in a note that the other requires consideration ('a besoin d'être revu').

Dr. Fischer adopts both under the names of Indri breviceudactus, Geoffry, and Indri laniger, marking however the latter as doubtful.

M. Lesson, in his 'Manuel,' also gives both species under the generic name of Indris, Lacépède, and the specific names of Indris breviceudactus, Geoffry, L'Indri, Sonnerat; and Indri longicaudatus, Geoffry, Le Maki sœur, Buffon, Le Maki à bouvre, Sonnerat; with the following dental formula: Inicisors $4$; canines $1-1$; molars $5-5$; $32$; the same number recorded for both species by Fischer. M. Temminck (Mammalogie) notices only one species.

Mr. Gray places Lichanotus and Indris in his subfamily Lichanotina, between Lemurina and Loridwfl, in his third family Lemuridae, which is the first in his second or Quadrupedoid section of his order Primates. (Annals of Philo-

gropy, 1825.)

Mr. Swainson confines the generic term Indris, Lacépède, to the Lemur laniger of Gymelin, and that of Lichanotus to the Lemur Indri, Gm. To both Mr. Swainson assigns the same number of incisors and grinders as that above stated; but he gives canine teeth $1-1$ to Lichanotus only. He places these two genera between Lemur, Linn, and Scartes, Sw., in the family Lemuridae. (Classification of Quadrupeds, 1835.)

M. Geoffroy (Magaz. Encyclopédique) observes that there are four cutting teeth in the upper jaw, not two, as mentioned by Sonnerat.

M. F. Cuvier states that the dental system of the Indri is only known to him from the extremity of the jaws, which offers in the upper jaw incisors like those of the Red Lemur, a canine tooth very much curved and entirely like two false molars which are found immediately next to it, and which have only a single point; in the lower jaw two inci-
sors only, the first very narrow, and the second wider, but both couched forwards ('couchés en avant'), like those of the Makis or true Lemurs, the canine small, and resembling a false molar which follows it, which has only a single point, and which is much wider before than behind, thickening from the external to the internal edge.

The figures and descriptions of these two species are given by Sonnerat in his 'Second Voyage,' and seem to be
the source whence the subsequent accounts have been principally taken.

The first, noticed by Pennant as the Indri (under the title Macaco), is described as a large animal three feet and a half high, entirely black, except on the face, which is greyish, on the lower part of the abdomen, where a greyish cast prevails, and on the rump, which is white. The face is stated to be of a lengthened dog-like form, the ears rather short but much tufted, the hair or fur silky and thick, curly in some parts. The nails are said to be flat but pointed, and there is no appearance of a tail.

**Locality.** Madagascar.

**Habits.** The animal is described as gentle and docile, and as being trained when young for the chase, as dogs are. Its note is stated to resemble a child's crying, whence not improbably its Madagascar name Indi, which is said to signify Man of the Wood.

The other species, Flocky Lemur of Shaw, is stated to be a foot and nine inches from nose to end of tail, the tail being nine inches. The colour pale yellowish-ferruginous above, and white beneath; the tail bright ferruginous. The fur extremely soft, and curled deepest about the loins. Face black; eyes large and greenish-grey. The animal is described as having two fore-teeth in the upper jaw, and four in the lower (Quere tamen), and pentadactyl feet, with long claws, except the thumbs, which are furnished with rounded nails.

Dr. Shaw observes that Pennant, in the last edition of his 'History of Quadrupeds,' seems to think this animal no other than the Lemur Mongoo, or Woolly Macaoco; but the Dr. adds, that if Sonnerat's description be just, the species must certainly be a different one from L. Mongoo.

LICHENOPORA. The fossils ranked under this title by Defrance are thought by Blainville to be young Pareora. ('Anticolonie,' p. 407.)

LICHENES, a large and important natural order of imperfectly organized plants, containing numerous species employed in the arts as pigments, and as articles of food. It is principally in the former respect that they are of economical interest, in consequence of the great consumption of orchell (Lichens), of the earth, and of other dyers; the estimated value of the annual imports of these plants being from 60,000l. to 80,000l.

Lichens are perennial plants, requiring free access to light and air, of the most simple organization, forming irredeemable coverings on stones, rocks, and other bodies. Their structure is imperfectly cellular, without any trace of vascularity. The cells of which they consist are spherical or cylindrical, tubular or fibrous, empty or filled with a grumous matter, in a loose and indefinite state of aggregation, but generally consolidated into two strata, the one external or cortical, the other internal or medullary. The membranous or other expansion, which in these plants consists of a combination of stem and leaf, is the most unequal and uncertain degree of development, in some species appearing like misshapen leaves spreading over the surface on which it grows, in other cases rising up as a stem of various figures; but always more or less unsymmetrical, and in many instances constituting little more than a stain upon the face of a rock or tree; this body is a frond, or, as it is technically called, a thallus. The fructification of lichens consists of a round or linear, convex or concave, cup, called apothecium, or shield, at first closed, but afterwards expanding and producing a nucleus (stigma) from which spores are disseminated. The shield is surrounded by a border (exciopsis) which originates either from the substance of the thallus (thalloides) or from the base of the shield itself (proprius), or from both (thallodes and proprius).

Lichens are distributed over all parts of the world, forming in the polar and similar regions a food for animals and man. Cladonia rangiferina supports the rein-deer. Cetraria islandica furnishes the nutritious Iceland moss of the druggists' shops; and various species of Gyrophora, under the name of Trize de Roch, form a part of the supply of food scantily furnished by nature for the Canadian hunter. In warmer countries they acquire a firmer consistence and appear to form secretions of a peculiar kind in much greater abundance than in the northern parts of the world. Orchill, for example, grows in Great Britain and the Canaries, and botanists can detect no external differences between the plants of these two countries; yet in the former its dressing matter is secreted so abundantly that Canary samples fetch from 250l. to 350l. a ton in the market, while the English are unsaleable.

The prevalent principles found in lichens are a peculiar kind of gluten resembling starch, a bitter secretion, and a resin combined with an unctuous colouring matter yielding purple, yellow, and brown dyes. In consequence of their bitterness some have been employed as febrifuges, as Vario-laria fagifolia, Parmelia parietina, and several others.

The area is between 50 and 60,000, and is divided into three suborders. (Fries, Lichénographia Europaea, Fave, Methode Lichenographique et Wallroth, Naturlgeschichte der Pflanzen; Eschweiler, Systema Lichenum.)

The following cut shows the various stages of development in the lichens of this country.
Lichfield is a city and county of itself, although largely situated within the county of Stafford, in 22° 54' N. lat. and 1° 44' W. long., and 118 miles north-west by north from London. The limits of the parliamentary borough comprehend the whole of the town, together with the surrounding county, to the distance of rather more than a mile, but within this boundary, and a little to the north-west of the city, there is a small space called the 'close,' which possesses a separate jurisdiction, distinct not merely from that of Lichfield, but also from that of Staffordshire. The corporation had its origin in the year 1387, when Richard II. granted to the guild a licence to purchase lands to the amount of 10l. a year. This guild was dissolved by Edward VI., who granted a charter of incorporation to the city, and Queen Mary, in the first year of her reign, erected the city and suburbs into a distinct county independent of the county of Stafford. The charter was that of 20 James I., which authorizes the establishment of two weekly markets, and empowers the bailiffs to receive the tolls and customs thereon. To this succeeded the charter of 16 Charles II. In 1656 James II. obliged the corporation to surrender their charters, which however were restored to them the following year, when all their former privileges and immunities were acknowledged and confirmed.

By the Municipal Corporation Act Lichfield is divided into two wards, with six aldermen and eighteen councillors. Neither the property nor the expenditure of the corporation is known, in consequence of the municipal authorities refusing to communicate with the parliamentary commissioners appointed in the year 1833, but the revenue is supposed not to exceed 300l. per annum, and arises chiefly from landed property. The tolls of the markets were compounded for in 1741 by Sir Lester Holt, one of the members for the city, which is the remuneration of which it was agreed that the city should thenceforward be 'discharged from all tolls whatever upon a market-day except picking.' The fairs are held January 10, Shrove Tuesday, Ash-Wednesday, and Tuesday in November. The market days are Tuesday and Friday. However, the city has returned two members to parliament continuously from the reign of Edward I. The incorporated companies are seven in number, namely, the tailors, bakers, saddlers, butchers, smiths, cordwainers, and weavers, in each of which are included several subordinate trades.

The name 'Lichfeld' is of Saxen etymology, and, according to Dr. Harwood, refers to the marshy nature of the surrounding country. The houses in the principal streets are handsome and well built, and the whole is supplied with excellent water, and paved and lighted. The goal and house of correction are well constructed, and admit of classification of the prisoners.

Lichfield, in union with Coventry, is an episcopal see. The cathedral sustained considerable injury during the civil wars, but was restored by Dr. Hacket in 1661; and more recently very extensive repairs and alterations have been effected under the superintendence of Mr. Wyatt. Its total length from east to west is 410 feet, and the width at its transepts measures 153 feet. There are three spires, of which the central rises to the height of 280 feet, the whole being ornamented with a profusion of very elaborate workmanship. In the interior are numerous monuments, and among them is one of Dr. Samuel Johnson, who was born in this city, and to whose memory a statue has been recently erected. (See Harwood's History and Antiquities of the Church and City of Lichfield, 4to., 1806; and also Dugdale's Monasticon Angliae.) The other churches are respectively dedicated to St. Chad, St. Michael, and St. Mary. The livings attached to the first two are paid curacies, valued at 31l. and 137l. per annum; the last is a vicarage in the patronage of the dean and chapter of Lichfield, and possesses an average net income of 458l.

The population of the borough in 1831 was 6292, which includes the population of the 'close.'

The free-school of Lichfield is stated, but upon very doubtful authority, to have been founded by Edward VI. As early as the reign of Henry III. the bishops of the diocese founded a religious establishment, which subsequently went under the appellation of the 'Hospital School,' but near the close of the seventeenth century, in consequence of various mismanagement, the affairs of the establishment became subject to the superintendence of the master of the free grammar-school, and in 1740 the chief part of its funds were transferred to the last-mentioned establishment, since when the two foundations are considered to have merged into one.

In 1535 there were 21 scholars upon the foundation, besides boarders, and at that time the school was described as being in a flourishing condition. For particular information relative to the management and state of the funds of this school and the other benevolent foundations of Lichfield the reader is referred to the Seventh Report of the Parliamentary Commissioners on Charities. (Boundary Reports, &c.; and the several authorities mentioned above.)

Lichtenberg, a principality situated between the Bavarian circle of the Rhine, the Prussian province of the Lower Rhine, Oldenburg, and Hesse-Homburg, has an area of 236 square miles, with 31,000 inhabitants. It was formerly called the county of Lichtingen, and, on the division of the congress of Vienna was ceded in 1816 by Prussia to the dukes of Saxe-Coburg, who gave it the name of a principality, calling it Lichtenberg, after an ancient castle, with a representative council of seven members, chosen by fifty electors. But the French Revolution, about July, 1830, and the troubles in Rhinisch Bavaria, excited various disturbances in the principality, particularly in St. Wendel, the chief town, to suppress which it was necessary to call in Prussian troops. This induced the Prussians to cede the principality, with all the rights of sovereignty, to Prussia in 1834. Prussia in return pays the dukes an annual sum of 80,000 dollars, till Coburg shall be able to purchase an equivalent in landed estates which shall in every respect supply the city, and with the savings of the united contingent of 250 men to the army of the Confederation with its own...
LICHTENBERG, GEORGE CHRISTOPHER, deserves a place in every English biographical work, if only on account of his admirable 'Erklärung der Hogarthischen Kupferstiche,' which, independently of his more constant work into the spirit of our great artist's works, than any of his English illustrators and commentators, scarcely excepting Charles Lamb, whose 'Essay on Hogarth' is besides a mere sketch of Hogarth's life with the extra fact that he was the German. Had he written nothing else of a humorous nature, this production would have established Lichtenberg's reputation for searching keenness of wit, comic power, and for both playful and severe satire. Hardly is this praise any exaggeration, when we consider the original work, it displays an intimate acquaintance with the subject, in which a foreigner is little short of wonderful—equally wonderful is it perhaps, that scarcely one of Hogarth's prints or editions has been reviewed without alluding to its existence, otherwise they would undoubtedly have made mention of it, if they did not produce. Fortunately however he did not live to complete his work.

Lichtenberg was born at Ober-Ramstadt, near Darmstadt, July 1st, 1742, and was his parents' eighteenth child. By his father, who was the pastor of the place, he was early initiated into mathematical and physical studies, in which he afterwards greatly distinguished himself, forming thereby a great exception to the notion that a mathematician, and wit, are the antipodes of each other. On the death of his father he pursued his studies, first at Darmstadt, afterwards at Göttingen, at which University he was appointed to a professorship in 1770. Although then only in the 28th of his age, he was well qualified for the office bestowed on him, such having been his asiduity that there was scarcely any branch of learning or science with which he was unacquainted. Just before his promotion he had made a visit to England, where he had the honour of being introduced to George III., and was noticed by the leading men of science in that day. The favourite reception he had met with induced him to pay a second visit to this country in 1774, preparatory to which he had made himself thoroughly versed in our language. For long this residence among us, which was of some continuance, he was admitted into the highest literary circles. He also studied our national character with that shrewdness peculiar to him, and laid in that stock of information which he afterwards turned to such excellent account in his work on Hogarth.

From the period of his return to that of his death he resided constantly at Göttingen, devoted entirely to the duties of his professorship, to his pen and his studies. He latterly became subject to attacks of hyperchondriacal disease which induced him to lead the life of a recluse, without other society than that of an excellent wife and his five children. This malady however did not interrupt his studies, to which he continued to give an even more devoted attention, nor did it prevent his carrying on a very extensive epistolary correspondence, almost to the day of his death, February 24th, 1799.

Besides the already-mentioned commentary on Hogarth (of which some specimens appeared several years ago in the 'London Magazine,' and from which there are also some extracts in the article entitled 'Lichtenberg and Hogarth,' Foreign Quarterly, No.32), his other works are exceedingly numerous, and no less varied; for while some are entirely didactic, on subjects of astronomy and physics, others are pieces of wit and satire, frequently of the most pungent kind, and occasionally of the most extravagant and whimsical cast. Among these productions of humour the titles of one or two may be mentioned as conveying some idea of their subject or their form, as 'Banditti and Infidels,' and 'A Sentimental Journey to Laputa.'

His Unfortunates, who are no Original Geniuses; A Patriotic Contribution to the Study of German Methyldy (Drunkards).

LIGHTWEl, MAGNUS GOTTFRIED, born at Wurzen, in Saxony, January 30th, 1719, though only one of the minor poets of Germany, may be considered almost the first in the rank of its fabulists, in which character he holds a superior place. He has placed in the literature of his country his only twenty-ninth year he lost his father, but his mother's circumstances enabled her to bestow upon him a good education. At her death, in 1737, the further charge of his studies devolved upon his guardian, the Stiftsrath Zahn, by whom he was instructed, which is said to have been principally through his visiting the court as a clerk. In 1740 he went to Halberstadt, where his mother's brother was one of the dignitaries of the cathedral. This change proved highly advantageous to him, being the means of his obtaining some important charges. In 1749 he published a new edited lectures in jurisprudence, of which he procured from the Elector, and also a didactic poem 'Das Recht der Vernunft; and in 1762 a 'Translation of Minutius Felix,' with notes. He died July 7th, 1763. The poem above mentioned is by no means his best work, as the Fables are only specimens of Wolt's philosophy, formally treated, instead of the dryness of the subject being at all relieved or adorned by poetical illustration of the doctrine. His Fables, on the contrary, are master-pieces; many of them strikingly original in subject, trenchant and pointed in style, and admirable in their moral. They abound with gnomic sentences most happily and energetically expressed; and although some few are inferior to the rest, there is scarcely one which has not its merits.

LICINIIUS STOLO, LICINIAN LAWS OR ROGATIONS. Caius Licinius Stolo, of a distinguished plebeian family at Rome, was made tribune of the people, together with his friend L. Sextius Laternus, in the year 375 B.C. These men were afterwards the office bearers. Licinius, by his eloquence, made the laws, bills or projects of law, for the comitia or assembly of the tribes to decide upon—1: That in future no more military tribunes should be appointed, but two annual consuls as formerly, and that one of them should always be a plebeian. The occasional appointment of military tribunes, part of whom might be chosen from among the plebeians, was a device of the senate to prevent the plebeians from obtaining access to the consulship. 2. To deduct from the capital of all existing magistrates the sum of 1000 marks, which should have been paid by the debtor as interest, and the remaining principal to be discharged in three years by three equal payments. This seems, according to our modern notions of money transactions, a very summary and not very honest way of settling standing engagements: but if we carry ourselves back to that remote period of Roman society, and take into consideration the enormous rate of interest demanded, the necessities of the poorer citizens, who were more often engaged in any kind of commerce, or the pressure of any kind of expense, and the public not only of the country, and had no means of supporting their families in the mean time except the ruinous one of borrowing money from the wealthy, who were mostly patricians, and who would never have given it to the debtor, except in the case in which that power was used, or rather abused, in many instances, such as those reported by Livy (ii. 23; vi. 14; viii. 24), we shall judge with more temper of the proposition of Licinius. The 3rd rogation has been a subject of perplexity to modern inquirers. Its object, as briefly expressed by Livy, was that 'no one should possess (posi-derer) more than five hundred jugera (about 333 acres) of land, and until lately it has been literally understood by most readers of Roman history as fixing a maximum to private property. But Beaufort, and more lately Heyne, Niebuhr, and Savigny, have shown, that the limitation referred to the holding of land belonging to the ager publicius, or public domain, and was not directed at what the state had purchased for the soldiers. This law does not reflect upon the insignificant extent of the original territory of Rome, and that it became gradually enlarged by the plunder or appropriation of a part of the land of the neighbouring nations, it appears evident that most of the large estates possessed by the patricians must have been portions of this conquered land, which was considered as public property, occupied, cultivated, and held as tenants at will, they and but which individuals of the influential class in the state then descended from which it was made to give up the surplus, which was to be distributed among those who had no property, and that in future
every citizen was to be entitled to a share of newly conquered plunder, and reside at the same duties. This might be considered as a bill for the better distribution of plunder among those engaged in a plundering expedition, for the land thus acquired and distributed cannot be compared to real property as held in connexion with crops, and it might perhaps serve to moderate somewhat the warmth of our sympathy in reading of the complaints of the Roman plebeians concerning the unequal distribution of land which had been taken by violence from a third party, the other side of the argument also being presented.

The patricians, who had had till then the best share of the common plunder, opposed the utmost resistance to the passing of these three laws. They gained over to their side the tribunes, who, however, stood on the side of the people. At the end of that year Licinius and Sextius put their own bill on the election of the new military tribunes, and being themselves re-elected by the tribes every year, they renewed for five years the same opposition to the election of the surule magistrates, so that the republic fell into a kind of anarchy.

In the fifth year, 370 B.C., the inhabitants of Vellitrea, a Roman colony, revolted, made incursions into the Roman territory, and besiegued Tusculum, the ally of Rome. Licinius and Sextius now waived their opposition, and the two bills were passed. Licinius was re-elected, and as the war continued, six more were appointed in the following year. Licinius and Sextius meantime continued to be re-elected every year as tribunes of the people. Licinius being elected, and as the three Tribunates, they again brought forward their bills, asking the senators 'how they could pretend to retain more than 500 jugera of land, while a plebeian was only allowed two jugera, hardly enough to build himself a cabin upon, and that besides, when he died.' These expressions of Livy's text confirm Niebuhr's opinion that the whole question was about the ager publicus, or conquered land, of which the plebeians who had served in the army received small allotments of two or more, but never more than six jugera. Licinius re-elected, and as the tribunes established a share in land for the senators, he again went on to the patricians, who still opposed his other bill concerning the debtors, 'whether they delighted in having their houses full of plebeians in fetters, so that wherever a patrician dwelt there must be a private dungeon also?' And then turning to the plebeians, he told them that the surest remedy for such evils was contained in his third bill, namely, that they should always have one of the two consuls chosen from their own body. 'It is not our intention,' he added, 'to make a law which shall be a private dungeon also.' license, again interposed, and an arrangement was made that while the patricians continued the consulship to the plebeian, the latter should have to the patricians the praetorship, or office of supreme judge in the city of Rome, which was then dividing the first time appropriated from the consulsip. This was peace restored.

Licinius, the great mover of this change in the Roman constitution, was re-elected to the consulsip, 365 B.C., and again in the year 360 B.C., but nothing remarkable is recorded of him while in that office. In the year 356 B.C., under the consulsip of C. Marcus Rutulius and C. Manlius Imperiosus, we find Licinius charged and convicted before the praetor of a breach of his own agrarian law, and fined ten thousand sesterces. It seems that he possessed 1000 jugera, one half of which he held in the name of his son, whom he had emancipated for the purpose. After this, we hear no more of C. Licinius Sto. (Livy, xi. 108; Niebuhr, Römische Geschichte, vol. iii.; Val. Maximus, viii. 6, and Savigny's remark, Das Recht des Besitzes, p. 175, on his blunder about the story of Licinius violating his own law.)

LICINIUS, FLAVIVS VALERIIUS. [CONSTANTIUS; DISCETIUS; GALERIUS MAXIMIANUS; LICINIUS (Laterrae), a genus of Coleoptera insects included in the great group Carabus of the older authors. The genus Licinius is placed by Dejean in his section Petallina, and, together with the genera Discetus, Remus, and celebrities of this order, has been distinguished from other Petalliinae by the want of the tooth-like process in the emargination of the mentum.

In the genus Remus (Laterrae) the three basal joints of the anterior tarsi are dilated in the male sex; the terminal joints of the palpi are elongated, somewhat ovate, and truncated at the apex; the mandibles project but little, are

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slightly arched, and pointed; the thorax is narrower than the elytra, which are almost parallel.

But two or three species of this genus (the Carabus politus and C. Fabriciusii) are known; they are found in the East Indies, and are of a black color.

Genus Dicelius (Bonelli) may be distinguished by the following characters: terminal joint of the palpi secundiform; labrum emerging and having a longitudinal impression; mandibles projecting but little, without internal denticulations, slightly arched and pointed; thorax nearly square; elytra moderately long, parallel or somewhat ovate; the three basal joints of the anterior tarsi are dilated in the male; members of Dicelius appear to be confined to North America, and about twelve or fifteen are described. They are in general of a tolerably large size, averaging perhaps about three-quarters of an inch in length, or rather less. Some of the species are of a beautiful purple or bluish tint; they are however most commonly black.

Genus Lycus. This genus the head is broad, short and rounded; the thorax is generally of a rounded form, and the body depressed and ovate; the labrum is short, and emarginated in front; the basal joint of the palpi is secundiform; the mandibles are stout, short, obtusely pointed, and dentate internally; the two basal joints of the anterior tarsi are dilated in the male sex. In Dejean's Catalogue of Col. opteres there are twelve species of this genus enumerated. Many of them appear to be confined to North America, and two or three are described. They are in general of a tolerably large size, averaging perhaps about three-quarters of an inch in length, or rather less. Some of the species are of a beautiful purple or bluish tint; they are however most commonly black.

Genus Badiaster (Clairville) is distinguished by the mandibles being short and obtuse; the two basal joints of the anterior tarsi are dilated in the male sex; the terminal joint of the palpi elongated, oval and somewhat pointed; the head rounded, and the thorax coniform. Of this genus five species are enumerated by Dejean, all of which inhabit Europe. Their small size however renders it probable that many more will be discovered; already as great a number as that given by Dejean has been found in this country, some of which are certainly unknown to that author. The genus Trimorphanus of Mr. Stephens appears not to be sufficiently known.

LICKS, as they are called in North America, are small tracts of land with a sandy soil, on which salt crystallizes in the form of an efflorescence, and which are resorted to by all animals that feed on grass, for the purpose of licking up the salt. They are of great importance in Brazil, where they are called Carretiros. That country being comparatively newly settled, the herds of cattle are very large, and sometimes amount to nearly 50,000 head. These cattle grow lean and emaciated to bad condition unless they have time to time get salt, which they lick with great eagerness. When a cattle estate has no natural licks, the proprietor is put to considerable expense to provide the necessary quantity of salt for his cattle. Hence the value of a large estate is much enhanced by the presence of salt licks, though in general they hardly occupy a space twenty paces long and wide. Wild animals, as deer, buffaloes, wild hogs, &c., also resort to them.

LICTOR, a public officer who attended on the principal Roman magistrates. This office is said to have been derived by Romulus from the Etruscans. (Liv., i. 59.) The kings, and afterwards the consuls, were attended by twelve lictors, the dictator by twenty-four, and the master of the horse by six. The lictors went before the magistrates one by one in a line; he who went first was called primus lictor, and the one who immediately preceded the magistrate proximus lictor. The lictors were originally chosen from the plebs (Liv., ii. 55); but in the time of Tacitus they appear generally to have been taken from the equites (Ag. xiii. 27), probably of the magis- trate on whom they attended.

The duty of the lictor was to see that proper respect was paid to the magistrates, and to inflict punishment on those who were contemptuous; and he had a loud voice to assist in some cases in the execution of a decree or judgment in a civil suit.

The lictors carried on their shoulders rods round in the form of a bundle, with an axe in the middle.

The etymology of the name is doubtful. Gallus (Axi. 3) describes a lictor as "the right hand of the magistrate," to keep the hands and feet of criminals before they were punished.

LICULA, a genus of Palms of the tribe Coryphinae of Martius, so named by Rumphius, from the Macassar name of the species L. spinosa, figured by him in 'Herb. Ambon.,' i. t. 9, and which is found in the islands of Maccassar and of Celebes. Another species, L. peltata, is described by Dr. Roxburgh as a native of the mountainous and woody parts of China. It is very short, which separates it from the Burman territories. Both species are small, with palmate somewhat fan-shaped leaves, but of little use. Rumphius describes the narrow leaves of its tree as being formed into pipes for smoking tobacco, while the broader are employed for mattresses; and for other domestic uses.

LIECHTENSTEIN, a sovereign principality, the smallest of all the states composing the German Confederation, consists of the counties of Schellenberg and Vaduz, and is situated between the Rhine, Switzerland, and the Tyrol, on the borders of Tyrol, and the Prince of Liechtenstein would regard the as the six thousand square miles of area which rise to an elevation of 5610 feet. It is the area only thirty-two square miles, with a population of nearly 6000 inhabitants, all of the Roman Catholic religion. The climate is very mountainous; but it produces corn, flax, wine, fruit, and timber, sufficient for the consumption of the inhabitants, who have also a good breed of horned cattle. The climate is a poor but happy little country, who subsist by agriculture, cotton-spinning, and manufactures of woolen ware. The revenue of 2000 florins per annum, all of which is applied to the public service; the prince's private domains produce a revenue of 17,000 florins. Liechtenstein, together with the principalities of Holzental, Reuss, Lippe, and Waldeck, is considered as the six thousand square miles of area which rise to an elevation of 5610 feet. It is the area only thirty-two square miles, with a population of nearly 6000 inhabitants, all of the Roman Catholic religion. The prince, who is the head of the second or younger branch, has lordships with 56,000 inhabitants. The total revenue of 380,000 florins, of which nearly a half is the revenue, is a one of the most ancient and illustrious in Europe; it is believed to have a common origin with the house of Este; and the history of Austria, for seven centuries, exhibits a splendid list of its members eminent in the cabinet and the field, such as Europe can boast. (Oesterreichische National Encyclopaedia; Hass, Stein; &c.)

LIEB (in German, Lütthich or Leib) is a province of the Republic of Austria, bounded on the north by Lomberg, on the east by Prussia (province of the Rhine), on the south by Luxemburg, and on the west by Namur and South Brabant. It is composed of part of the former bishopric of Liege and of the duchies of Luxemburg and Trier. The majority of the inhabitants of Dalhem, the abbey lands of Stablo, and several villages known by the name of Terres de Redemption. Its area is about 2150 square miles. The smaller and northern portion is hilly and undulating; the southern is mountainous. The Ardennes cover a great part of the province, especially about Marcho and St. Hubert. The soil differs much in quality. On the west side of the Maas, and on the east side towards Limburg, the plains, valleys, and low hills are fertile and well cultivated; on the east side of the Maas, where it is joined by the Ourthe, especially towards Luxemburg, the soil is rocky and stony. In this part of the province there are extensive forests. The principal river is the Maas, which comes from Namur, and forms at first the boundary between the two provinces. After receiving the Ourthe, it flows between high, steep, and often perpendicular rocks to Liege, where it becomes broader, and enters the province of Limburg. The climate is on the whole healthy. In the northern part it is temperate, and generally damp; on the south it is warmer, the air is more healthful and severe and longer. The country produces some corn and a little wine, resembling the middle kinds of champagne and burgundy; the pastures are good, and maintain great numbers of cattle, especially the lictor, and so the agriculture is excellent, but the wool of inferior quality. The mineral wealth of the country is considerable; there are mines of calamine, alum, lead, and iron-ore; but the most valuable product is coal, of which half a million of tons at least are annually raised, and the quantity must be constantly in
LIEGNEITZ, one of the three governments into which Silesia is divided, comprises the most north-westerly part of that province, and that part of Upper Lusatia which is now part of Prussia. Having been enlarged by the incorporation of the five circles of the former government, and the largest part of Spremberg-Hoyerswerda, it now consists of nineteen circles. Its area is 5270 square miles, and the population, which, by the census of 1831, was 76,170, and in 1847, 758,682 inhabitants, had increased by the end of 1857, to 944,281.

Goldberg, situated on an eminence on the banks of the Kattzbach has double walls and four gates: the population is 7693. Grünberg, a walled town, with three gates, has 700 houses and manufactures of woolen cloths. Lauben, on the Queis, a walled town, with four gates, has 5500 inhabitants, who have manufactures of calico and linen. Sagan, near the Bober, is a strongly fortified town, with three gates, a bishop's palace, and a market. It has manufactures of woolen cloth, linen, stockings, lace, and looking-glasses. The population is 11,674.

LIEGNITZ, the capital of the circle and of the government of the same name, is situated in 51° 12' 30" N. lat. and 16° 12' 16" E. long., at the conflux of the Schwarzbach and the Kattzbach. The population amounts to 11,674. The inner town is surrounded by a square earthen rampart, which is laid out in public gardens, with fine avenues of limes, mulberry, and chestnut trees, and has four gates, but it is not a fortified place. The ancient palace of the princes is in the town, and is surrounded by a wall. The Kattzbach issues from the city, and two Roman Catholic churches, of which that of St. Peter and St. Paul has a large library, and that of St. John contains the magnificent chapel where the old princes of Liegnitz and Brieg were interred. Among the public institutions are a university, a gymnasium, an eight Lutheran schools, two hospitals, a Catholic orphan asylum, and a Bible society. The Royal Equestrian Academy is a magnificent building like a palace; it was founded in 1708 by the emperor Joseph I., for the sons of Silesian gentlemen, Protestants as well as Catholics, and was remodelled in 1810 for the education of children of the upper classes of society, with five professors. It has a good library, mathematical and other instruments, collections of natural history, &c., and besides, it manufactures of woolen cloths, linen, cotton, silk, stockings, tobacco, starch, &c., and great breweries. In the suburbs and environs great quantities of fruit and vegetables are grown. Liegnitz contains a theatre and other places of public recreation, and it is reckoned a safe place of residence, after Breslau, in all Silesia. Frederick II. defeated the Austrians under Marshal Laudon between this town and Parchwitz in 1766. In the vicinity is Walsztatt (which word means 'the battle-field'), where the celebrated battle with the Mongol Tartars was fought in 1241, in which Frederick, duke of Liegnitz, lost his life; and between this place and Brecliwitz on the Kattzach, Bliicher, together with the Russians, defeated the French under Napoleon, which latter victory, has since been reported the title of Prince Bliicher of Walsztatt.

LIEN (from the French l i e n , 'a tie, or 'band'). Various definitions have been given of this branch of this juridical term, but many of them are either inapplicable, or so general as to comprehend other rights besides those of lien. The following definition is perhaps as correct as any that has proceeded from the judges:—'A lien is a right in one man to retain that which is in his possession, and only to be removed on the demand of the person in possession, is satisfied.' (Grose, J., in Hammond v. Barclay, 2 East, 227.) The definition therefore includes possession by the party claiming the lien; and an unsatisfied demand by him against the owner of the property; but it does not show by itself this right to the property. If the man's property differs from the right of a pawnee or pledge.

The determination of what shall be possession sufficient to constitute one element of lien is a part of the general doctrine of possession. It follows from the definition that if the party claiming the lien has not possession, he can have no lien; and as a general rule, if he has voluntarily parted with possession he has lost his lien. What shall be a parting with possession sufficient to cause a loss of lien is also to be determined by the general doctrine of possession. When possession of the thing is regained, the lien does not revive if the possessory gets the thing back under any circumstances from which a different contract may be implied from that under which he originally parted with possession.

The defect of this definition is that it does not show wherein consists the difference between lien and pledge leads to the consideration of the way in which the right called lien arises. It has been said that 'liens only exist three ways: by express contract, by usage of trade, or where there is some legal relation.' (Bayley, J., 1 Bla. and Ald., 52.)

When lien arises by express contract, it is either simply mortgage, pawn, or pledge, which are then the more appropriate terms; or it is an agreement (if in the case of personal effects) that goods entrusted by one person to another for the purpose of sale, or for some other purpose than pledge, may be retained by the party entrusted with them, as a security for any debt or balance due to him from the other; if these agreements proceed of things entrusted to him to sell, for the same purpose. Pawn or pledge is the tradition of a thing by the
owner to the pawnee, to be held and retained by him as security for a debt due from the pawnee; and it is a matter of express contract. Lien by contract differs from pawning or pledging in this, that in the former the retaining the thing is not the consideration for which the thing is retained by the owner. In pawn or pledge goods are received in order to be retained and kept; in lien by contract they are delivered by the owner for some other purpose, but may be retained as a security for a debt due from the other party. Where two parties have so dealt with one another that one has claimed the other and the other has allowed the right of lien in respect of any of their mutual dealings, lien may exist in all cases of like dealings between them, submitted to the same general limitations as are applicable to a real contract. The acts of the parties are here the evidence of the contract, which is as express as if made by formal words.

The 'lien by usage,' and 'that where there is some legal relation between the parties,' belong to one class, and are not distinguishable. They are both included under liens which do not arise from express but from implied contract. Lien may be defined as primâ facie a right accompanying the implied contract. (Lord Eldon.) The usage of trade is merely evidence from which contract is to be implied: parties who mutually act in conformity to a custom have in effect, though not in form, made a contract. The term 'legal relation' is only another mode of expressing the mutual rights and duties of the same parties, and implying the limits of a custom, and so given evidence of an intention to make a contract. Thus an innkeeper has a lien upon the horse of his guest, which lie takes into his stable to feed a carriage horse, or, which he does not hire, a tailor has employed to make a suit of clothes a lien on them for the price of his labour, if the cloth be given to him for the purpose of making the clothes; and if he furnishes the cloth, and his customer, after the clothes are made, agrees to have them, and so obtains the use of the property in them, the tailor has a lien on the clothes, or any part of them, for the whole price. The contract in these and similar cases is for payment of money on one side, in consideration for certain acts to be done on the other; and the debt is not limited to a personal property to the other, who is to do some act to it, or in respect of it, for money, implies a payment of the money before the owner's right to repossess the thing can commence. Where the owner never had the property or possession of the raw materials, but acquires the property in a thing by his bare assent, as in the case just mentioned, the tailor's prior right of property is converted into a mere right to hold till his debt is paid, or, in other words, instead of property he has a lien. If the owner of a thing sells it, and the price is not paid, and the price is by law to be retained till the day of payment, for he has, by the form of his contract, excluded himself from such right to a lien.

The foundation of all liens, where there is no expressly contract, is the possession, and the debt becomes lawful, if it is confirmed by a competent authority. When many customs of lien have thus become law, other cases of claims of lien are also established as law in like manner, simply from analogy to the liens originating in custom.

Lien, unless there be an express contract, or a custom to the contrary, must from its nature be particular, that is, must have reference to a particular transaction and to a particular thing. When it is general, that is, where the right is not limited to a particular transaction, but exists with respect to other transactions also, there must be express contract, or the dealings of the parties must be such as to create that implied contract which arises from acts done in conformity to well-known usage.

Lien, when it exists, may be lost by voluntarily parting with the thing, by express agreement, or by agreement to be implied from acts. In general, when a person has a lien for money, it law takes from him the property for the debt. A solicitor has a lien for his bill on his client's papers which came into his possession in the course of transacting his business; but if he accept a security for his debt, he can be legally compelled to give up the papers. From the express or implied agreement arises the implied agreement to give up the thing which is retained, the acceptance of such special security being equivalent to an agreement to receive the debt or demand at a future day, and such agreement as to future payment being inconsistent with the retaining the thing, which act of retaining is equivalent to a claim for present payment. A factor, who has a lien on goods in his possession, both for his outlay on or with respect to those goods and for his general balance, loses his lien if he enters into an express contract for a particular mode of payment. If usage of trade and acts in conformity to it can be considered as evidence of a contract that goods shall be retained by one person as a security for a debt or balance, and another, who has not secured payment of such debt or balance must be considered as inconsistent with the implied contract, and therefore as determining it.

In Equity, the vendor of an estate, though he has executed proceedings for its sale, is not entitled to receive the price of the estate being paid, still has his estate as a security for such part of the purchase-money as is unpaid. This security is generally, though not with strict propriety, called the vendor's lien. The ground of this so-called lien lies in the nature of the contract: one party contracts to take the land and the other parties to give money for land. Until both parties have performed their engagement, the land and the money cannot be considered as exchanged.

The equitable mortgage which is created by a deposit of title-deeds as a security for a debt is sometimes, though not with strict propriety, called equitable lien. By this deposit the depositor's interest in the lands to which the deeds relate becomes a security for the debt.

The equitable mortgage is inconsistent with the presumption of a lien, and in this respect it differs from a thing pledged, which can be assigned by the pledgee to the extent of his interest in it. Generally a lien gives no right to sell, except by particular custom. Where a factor has a lien on the goods of another, he is entitled to sell them, if the goods are left in his possession, and to the proceeds of the sale; and no transfer of the lien: the goods are a pledge or pawn in the hands of the lender, who may hold them as a security for his advance to the amount of the factor's lien. The lender may have a right to retain the goods as a security to him, and may precisely the same as a creditor has, but his right to retain flows from a different source.

The practical questions which arise under the general doctrine of lien are numerous, and sometimes not easy of solution; many of them are of the greatest importance to the mercantile community. For further information the reader may refer to the articles Agent, Attorney, Bailment, Carrier, and Factor; and to Montagu On Lien, for a collection of a considerable number of particular instances.

LIEOU-KIEOU ISLANDS, also called LOO-CHOO, constitute the most important of the several groups of islands which, though situated at considerable distances from one another, form a marked chain of connection between the Japanese island of Kiosioo and the Chinese coast. They consist of a group called Loo-choo, which lies about 28° N. lat. and 127° and 129° E. long., and are said to consist of thirty-six islands, of different but rather small dimensions. The largest of them, called great Loo-choo, and sometimes referred to as Loo-choo Island, is a very nearly sixty miles long in a north-east direction, and about forty miles broad, forming an abrupt front of about ten or twelve miles. The surface of these islands is mostly uneven and rugged, but the elevations do not attain a great height. The highest of the hills, Ono-dake Mount, measured by Captain Beechey, does not attain 1100 feet above the sea. They seem to be of volcanic origin, but no active volcano has been observed in them. The lower tracts are of great fertility, but the most elevated are generally bare and rarely covered with wood. The fertile tracts, which are in high cultivation, are limited to a narrow

ments sweet potatoes, millet, wheat, Indian corn, rice, potatoes, cabbages, barley, the sugar-cane, cotton, peas, tea-shrubs, tobacco, capsicums, cucumbers, cocomuts, carotts, leffutes, onions, plamains, pomegranates, and oranges, as growing on these islands. Their agriculture resembles that of the Chinese, particularly as to manuring and irrigating the ground. Along the sides of the hills and around the villages the bamboo and rattan grow to a considerable size. The pine or bamboo, to a great height and size, and the banyan-tree is also common. Cattle are not abundant, and are only employed for agricultural purposes. Milk is never used; hogs, goats, and poultry, with some fishes, are the common food. The sea animals and aquatic plants, form the food of the inhabitants. They have no sheep, nor asses, but only a few horses, which are of slight make, and used for riding and carrying loads. The climate is very mild, these islands being situated within the range of the trade-winds. The inhabitants more resemble
the Japanese than the Chinese; they are rather low in stature, but are well formed, and have an easy graceful carriage; their colour is mostly of a deep copper, but varies considerably in individuals; their hair, uniformly black, is glossy, but not so smooth and straight as that of the Chinese; they are usually of medium size. Goodmaness and simplicity characterize them all. The language is similar to the Japanese. Guizhaff marked that the difference between the two languages was similar to that between High and Low German. They are acquainted with the Chinese writing and can read the classical educated classes. They seem to have made considerable progress in several branches of manufacturing industry, and produce salt from sea-water in an ingenious manner. They have never had any commerce with China and Japan, but nothing preclude it to the future, aluminium, sugar, and hides which are exported or imported. It would seem that salt, and sulphur are the most important articles which are sent out. The principal commercial town of Great Loo choo is Napakking, or, as Captain Beechey thinks that the town of Shii or Shoodi is the capital and residence of the king. It is situated farther inland, on a hill, and has never been visited by Europeans. The stay of no European vessel in these islands has been long enough to enable us to ascertain their degree of dependence either on China or Japan, whether the sovereign is subject to one of these countries, or entirely independent. Captain Beechey proceeds to the court of Peking or Yeddo, which seems the most probable. (Capt. Basil Hall's Voyage of Discovery to the West Coast of Corea and the Great Loo-choo Island; Capt. Beechey's Voyage to the Pacific; and Rorke's Journal of an Expedition from Singapore to Japan.)

LIER (Lierre, Fr.), a considerable town in the kingdom of Belgium, in the province of Antwerp, is situated in 51° 9' N. lat. and 4° 37' E. long., at the confluence of the Great and Little Lierre (which is sometimes called Lierre-toi) an independent stream of the river Lierre, which runs merely the Neth. It has eight churches, the chief of which is a handsome edifice, an hospital, and a Beguinage. The inhabitants, who are 15,000 in number, carry on various manufactures, such as making lace, hemp, cotton, yarn, &c. Calico-printing is likewise carried on at this extent. The distilleries and breweries are numerous. Rape seed is grown in great quantities in the adjacent country, and there are many oil-mills in this town.

LIEUTENANT is an officer who discharges the duties of a superior, in his name and during his absence; and who acts immediately in substitution to him when he is present. Thus, in military affairs, the lieutenant-general and the lieutenant-colonel respectively superintend the economy and arsitery; and only sends some orders to those who hold the chief command. The lieutenant of a company is also immediately subordinate to the captain, in whose absence he has the same powers. In the British service, in the middle rank of foot or mounted officers, lieutenants have the rank of captain: in the royal regiment of artillery, the royal corps of engineers and marines, and also in the rifle brigade, there being no ensign, the subaltern officers are distinguished as first and second lieutenants.

In Ways's "Anniversaries of War" (1639), it is said, "A lieutenant is an officer of high credit and reputation, and he ought in all respects to bee well indoctrinated and qualified in the arts military, and not inferior in knowledge to the same body of men. He may better demean himself with an experienced lieutenant than an unskilful lieutenant can fadge with a skilful captain." The price of a lieutenant's commission is, according to the present regulation—

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<td>Foot-Guards</td>
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A lieutenant in the royal navy takes rank as a captain in the army, and the number appointed to ships of war varies with the rate of the latter. A ship of the first rate has three lieutenants commanding gun-brigs, schooners, and cutters, it is l. l. 104. The monthly pay of other lieutenants commanding gun-brigs, schooners, and cutters, is 11l. 10s. The monthly pay of other lieutenants, for ships of all rates, is 9L 4s. 0d.

LIEUTENANT COLONEL [GENERAL].

LIEUTENANT, LORD and DEPUTY [LORD-LIEU- TENANT].

LIFE. Organic matter, in which alone the phenomena of life are cognizable to our senses, is distinguished from inorganic matter by several peculiarities of composition and structure. Twenty elementary substances occur in organic matter, viz. oxygen, hydrogen, nitrogen, carbon, phosphorus, sulphur, iodine, bromine, chlorine, fluorine, potassium, sodium, calcium, magnesium, silica, and iron. These substances change their state of aggregation according to the different atmospheres which they are united in; as, in organic bodies, but several (as 10 or 12 of one) are united with several of each of the others to form one compound atom. Thus while the relative atomic proportions in which they are united and only one class of elementary substances, and the laws of definite proportions, and of combination according to fixed numbers or simple multiples of them, ascertained from the study of inorganic bodies, yet there results from the number of elementary substances, and the number of atoms of each which unite in each atom of the organic compound, this important circumstance, that from a few elementary substances (scarcely more than one-third of those known) of different elements unite to form one compound atom. Of the twenty above mentioned, the first three almost alone form the proximate principles of vegetables, and the first four those of animals. They are therefore called essential elements; while the others, occurring in very small quantities and according to no general rule, are called incidental elements.

In respect of structure, it is observed that all organic bodies, plants as well as animals, have a more or less rounded or globular, branched or membrane bandaged by curved lines, and by convex or concave surfaces very distinct from the crystalline, the only regular form of inorganic matter. They are composed of heterogeneous substances and parts, containing in all cases a certain mixture of fluid substances. This mechanical or physical composition is distinguished by softness and flexibility dependent on the mixture of their fluid with their solid parts; their character thus varies in different situations, and is as entirely distinct from the firmness of inorganic solids, as the parts in inorganic bodies are composed of particles which when examined by the microscope have for the most part a rounded or globular form, beyond which they do not appear to be mechanically divisible. These elementary particles, united in a variety of ways, form the basis of the different animal and vegetable tissues, of which again are formed the several organs, whose assemblage constitutes the perfect organic being. It need scarcely be said, that this composition of different parts of different materials gives rise to the whole, or the position of the homogeneous nature of the minutest particles of an inorganic body, and of the similarity which every part of it bears to the whole.

All the parts of an organic body are, both in their origin and in their continuance, more or less dependent upon one another. In their original formation, the production of one part induced that of another; and when formed, the action of one influences the actions of all the others. Thus the parts being required from the fluid to fulfill their respective duties, that they may themselves be duly maintained; while the due formation of the living fluids in its turn depends mainly on the healthy action of the solids. The forms of organic bodies undergo varied alternations in the course of growth; in some cases, it is the result of certain laws, which are differently modified for each species. The production of new beings depends upon the exercise of certain functions belonging to those already existing. The
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LIFE MEAN DURATION OF. This is commonly called the expectation of life, which, properly speaking, it is not. Of a thousand lives of equal goodness, any one may expect to live as long as he has an even chance of living, that is, till 500 are extinct. This period has been denominated the mode.

The mean duration of life, or the number of years which, one person with another, are enjoyed by individuals of a given age, is found from the tables of mortality, which give, out of a certain number born, the number who are left at every age. If the average law of human life were given, and if \( f \cdot x \cdot dx \) represented the chance of an individual aged \( n \) living precisely \( x \) moments of time, then \( \int f \cdot x \cdot dx \), taken from \( x = 0 \) to \( x = a \), is the longest possible term of life, would correctly represent the average duration of life in persons aged \( a \) years. The tables however are so imperfect that it is not worth while to attempt the accurate application of the preceding formula, but we may use more than the roughest of the processes which will be described in QUADRATURES, METHOD OF.

The theoretical imperfection of this process consists in its being necessary to suppose that the individuals who die in any one year die at uniform intervals throughout that year, so that, with one another, they enjoy half of their year of death. The mean duration of life is then constructed as follows. Let \( a \) be the number living at the age in question, of whom let \( b, c, d, e \), etc., be less than \( a \) in the set of successive years. Then \( a - b \) die in the first year, \( b - c \) die in the second year, \( c - d \) die in the third year, etc., of which \( b \) (who survive) enjoy the whole year. Consequently the \( a \) persons enjoy, in the first year, of the calculation, \( a \cdot b \); in the second year, \( b \cdot c \); in the third, \( c \cdot d \); etc., in the second, third, etc., years. If these be put together, the result is \( a \cdot b + b \cdot c + c \cdot d + d \cdot e + \ldots \), which, divided by \( a \), gives for the average number of years enjoyed by each individual, or the rule is, add together the numbers left at every age above that given, divide by the number alive at the given age, and add half a year.

If it be judged advisable to make the preceding result a little more manageable, correctly diminish the preceding result by the 12 a-th part of \( a \) to \( b \).

LIFE INSURANCE. The great importance of this subject to those engaged in insurance plans either formed or in agitation make it desirable to place the peculiarities of a like nature possible in the order of time of publication. We therefore refer it to REVERSIONS.

LIFE-BOAT. A boat constructed with great strength to receive persons when it is necessary to take them from vessels, at or near the shore, in such a state as to render a sufficient buoyancy to enable it to float through loaded with men and filled with water, is called a life-boat. Such boats are maintained at most of the ports of this kingdom, always ready to put to sea when vessels are seen in danger of shipwreck, and provided with means for being rowed on shore and launched as rapidly as possible. As early as the year 1785, a patent was granted to Mr. Lukin for a life-boat with projecting gunwales and hollow cases or double sides under them, as well as air-tight lockers or enclosures under the gunwales at midship to increase the buoyancy of the boat, and the air-tight cases under the gunwales, by their weight when raised above the surface of the sea, and their resistance when depressed beneath, greatly augment its buoyancy. Its gunwales are strong and buoyant, but it was liable to be disabled by having the cases staved in. This defect was obviated in Mr. Greathead's boat, which was invented soon after. This life-boat is usually thirty feet in length, ten in breadth, and three feet six inches in depth. It is composed of the following ingredients:—a. the covering and elasticity of the cork is well calculated to prevent the cork on the outside is four inches thick, and it reaches the whole length of the shear or side of the boat; on the inside it is thicker, and the whole quantity is about seven hundred-weight. It is firmly secured with slips or plates of copper, and fastened with copper nails. The advantages of this boat are stated to be, that its curve gives it great facility in turning, a single man can manage the steering oars, of which there is one at each end, moving the boat so as to keep on a straight line; the sheering of cork, being immediately under the gunwale, gives great liveliness, or disposition to recover its balance after being suddenly cantled aside by a heavy wave; and that its capability of going with either end forwards increases its manageability. The life-boat is usually kept in a boat-house near the shore, and is sometimes placed on a carriage and then little wheels for conveyance to the sea. This mode is however somewhat unmanageable, and the following is found to be more serviceable.—Two wheels, nine feet in diameter, are connected by an arched axle, to which is fixed a long pole of considerable strength to serve as a lever: the wheels are placed such a part of the pole as can stand between them with the pole standing on its centre. With the pole in the horizontal position, the pole rises above the boat; but when the pole stands up perpendicularly, then the arch touches the boat. In order to move the boat, the arched axle must be brought over its centre, and the pole set upright: two chains fastened to the arch must then be hooked on to two eyebolts fixed in the inside of the boat; the pole is then lowered, the arch rises, and brings up the boat with it, ready for rapid movement. This plan also gives great facility in launching, which may be done with the carriage.

Mr. Greathead's boat was first built at Shields in 1789; and before the year 1804, when the Society of Arts voted the inventor their gold medal and 50 guineas, it had saved forty lives from vessels wrecked near the mouth of Tynemouth haven.

The rules given for the management of this boat are applicable to all of a similar sort. It should be entrusted to an experienced man acquainted with the times and direc-
tion of tides and currents, and he is recommended to keep the
boat with her head to the waves as much as possible, giving
her such a head as will keep her on her beam ends, that the
use of the spigot is not unessential in keeping her on her
beam ends, and it was therefore furnished with a rudder,
and with a mast and sail on both sides. A buoy of this
construction was dropped from Monmouth bridge, where
the stream was very rapid, and it was found to sup-
port a man who swam to it, and to enable him to sail against
the stream. If such buoys were to be generally used, some
plan might surely be devised to cause them to fall always
one way, and so to render the double mast and sail un-
necessary.

In 1830 Captain Lilliearp, of the navy, proposed to the
Admiralty to convert the warping buoys which abound in
our harbours into a sort of life-buoys, by fitting them up
with wooden battens placed lengthwise from end to end
upon their circumference. It should be understood that
these buoys are like large barrels, and the buoys are
merely wooden caskets or rafts nailed along their sides,
with hollows for the hand to lay hold on as on a rail. These
were first tried in Portsmouth harbour, and within one
month the crew of a small vessel which sank in the harbour
was saved by holding to them. Such battens have since
been fixed on the in several British ports, and in
several instances they have saved many lives.

By these several appliances many persons are saved from
the wreck which hitherto threatened them, though even
Greathead's boat, the best of them all, could only
be used, it seems, as a last resort. In the year 1810,
at Tynemouth harbour, a life-boat, which had
\textit{\textbf{LIPPY}}, River. \textit{[IRELAND; DUBLIN, County.]}

LIFTING, on Easter Monday and Tuesday; a custom
which formerly prevailed among all ranks throughout
the kingdom, and is yet partially practised in several of our
distant counties. In Lancashire, at Warrington, Bolton,
Manchester, and other places, on Easter Monday, the women,
in parties of six or eight each, still continue to surround such
as opposite sex they may meet, and either with or without
their consent lift them three times above their heads into
the air, with loud shouts at each elevation. On Easter Mon-
tues-day the men in similar parties do the same for the
women. The like practice prevails at Shrewsbury, and probably
in other places. In Pennant's time it was not uncommon, if it is
not still used, in North Wales. Strange as it may seem, this
custom is intended to represent, or rather to commemorate,
our Saviour's resurrection. The lifting of King Edward I.
in the trees has been a morrow of Easter Sunday, among a
party of the ladies of the bedchamber and maids of honour, to-
gether with the fee paid to them upon the occasion, occurs up-
wards of the custom of the fryer and the silver
in the \textit{\textbf{LORDS}} of the Tower of London (Brand's \textit{\textbf{Popular Antiq.}},
vol. i., pp. 154, 155; Pennant's \textit{\textbf{M.S.};} Brady's \textit{\textbf{Chiva Calendaria}}, 8vo., Lond., 1812, vol. i. p. 274.)

LIGAMENT. [ARTICULATION.]

LIGAN. [\textit{\textbf{Flotsam}].]

LIGATURE. \textit{[Hemorrhage].}

LIGATURE, In modern music, a binding, indicated by a
curved line, \, If two notes on the same degree are thus joined, only the first is to be struck, but the second
is to continue its full time. \textit{Ex.}:

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{ligature.png}
\end{figure}

In vocal music all the notes which are set to one syllable
are bound together. \textit{Ex.}:

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{ligature_vocal.png}
\end{figure}

In music in the old character, i.e. consisting of longs
and breves, the notes in \textit{ligature} were joined—were written
or printed side by side. \textit{Ex.}:
point, that is, the illumination of a unit of spherical surface having a unit radius, be represented by \( r_i \) and a small plane, of which the area is \( a \), be exposed to the same light at a distance \( r \) from the origin, and situated perpendicular to the luminous ray, the quantity of light which it receives will be represented by \( \frac{a}{r_i} \); but if the plane, instead of being perpendicular, be inclined to the direction of the ray at an angle \( \alpha \), the total illumination of the plane will then only be \( \frac{a}{r} \sin \alpha \), for a \( \sin \alpha \) is the area of the plane projected in a direction perpendicular to the ray, and this projection at the same distance would evidently receive the whole of the light which fell on the inclined plane: we shall give a few examples of such formulae.

Suppose we seek the point situated between two lights which receives the least illumination from both: represent its distances from the luminous bodies by \( r \), \( r' \), and their intensities by \( t \), \( t' \), respectively; then if \( u \) be the actual illumination, we have \( u = \frac{t}{r^2} + \frac{t'}{r'^2} \); now since \( r + r' = c \),

the constant distance between the lights, therefore \( \frac{dr}{dr} = -1 \)

and

\[
-\frac{1}{2} \cdot \frac{du}{dr} = \frac{t}{r^2} - \frac{t'}{r'^2} \cdot \frac{dr}{r} = \frac{t}{r^2} + \frac{t'}{r'^2} - \frac{t}{r^2} + \frac{t'}{r'^2}.
\]

The last equation shows that \( \frac{du}{dr} \) is positive, and therefore corresponds to a minimum; the former, since \( \frac{du}{dr} = 0 \), gives

\[
r = c \cdot \frac{i}{i + i'} = c \cdot \frac{i}{i'}.
\]

Hence we see that

our cognizance of the intensity of two lights are directly as the cubes of their distances from the least illuminated point between them. This result may serve in some cases to compare the intensities of different lights.

Suppose next that \( A \), \( A' \) represent two lights of the respective intensities \( i \), \( i' \) and that \( P \), \( P' \) are planes, each of which bisects the angles \( \angle PA \), \( \angle CPA' \); the angle \( \angle PBP' \) is obviously then a right angle, and the plane \( P \) at \( P' \) will be equally illuminated at the point \( P \) by the two lights, provided

\[
\frac{AP}{P} = \frac{AP'}{P'}
\]

that is, provided

\[
\frac{i}{i'} = \frac{AB}{A'B'}
\]

the constant \( \frac{i}{i'} \); then by Ende, book vi., \( \frac{AB}{A'B'} \) is equal to the same constant, by which the point \( B \) may be found, and \( \frac{A'B'}{AP} \) being still the same, \( B' \) is similarly known: hence if on \( B'B' \) as diameter a circle be described, each point, such as \( P \), will have the property that planes directed through it to either extremity of the diameter will be equally illuminated by the two lights; but the different portions of the curve itself do not possess this property, which may be too readily supposed from the inaccurate statement of the question in optical treatises.

Let it now be proposed to find the nature of a curve, every element of which shall receive equal illuminations from two given lights. Let \( r \) be the radius vectors to any point drawn from the two poles or lights, and \( \theta, \theta' \) the angles which \( r, r' \) make with the axis or line joining the lights internally; then \( r \) representing an arc of the curve, the sides of the angles at which \( r, r' \) are inclined to an element of the curve are \( r \frac{dr}{ds} \) and \( -r' \frac{dr'}{ds} \); and representing the intensities as before, the condition of equal illumination gives the equation

\[
\frac{i}{i'} = \frac{r \frac{dr}{ds}}{r' \frac{dr'}{ds}}\sin \theta = \frac{\theta}{\theta'}\sin \theta' \]

whence

\[
\frac{r}{r'} = \frac{\theta}{\theta'}\sin \theta' \]

by trigonometry.
integrating we find \( i \cos \theta + i' \cos \theta' = \text{const} \), which (together with the common trigonometrical equations) gives the polar equation of the curve sought. We should obtain a negative, if we suppose the curve equally illuminated on opposite sides.

Having now considered the laws of the emanation of light from points, we are next to consider its emanation from a luminous circular surface. The light is oblique to that of the surface. To this end suppose \( AB, BC \) to be two planes of equal luminosity relative to a unit of either, and regarding only that portion of the light which emanates in the directions \( AD, BD, CD, \) perpendicular to \( A \) produce \( BC \) to meet \( CD \) in the point \( a \), and suppose the extent of \( BC \) to be taken, such that \( BA = B \), then \( BC \) will seem to the eye (receiving the rays in the directions \( AD, BD, CD, \)) to be of the same extent as its projection \( Ba \), or as that of \( B \); but as its luminous surface is greater, it would appear brighter than \( B \) in the ratio of \( BC \) to \( Ba \). If the intensity of the oblique emanation from \( C \) be equal to that of the direct emanation from \( B \). Now we know by experience that it has only the same brightness as its projection, for if we take a bar of metal and put it into a dark room, it appears no brighter when viewed obliquely than direct, the only observable difference being in apparent size, which is that of the projection of the bar on the line of vision: hence it follows that the emanation from a unit of the oblique surface is less than that of the direct, in the ratio of \( B \) to \( BC \), or, which is the same, as the sine of the angle of emanation \( BCD \) is to unity. After emanation it follows the same law as direct light, of diminishing in intensity inversely as the square of the distance. This law has been the subject of much contention, but we may remark that something similar occurs in the motion of electrodynamic currents, which though they follow the law of the inverse square at different distances in a given direction, yet in different directions the intensity varies inversely as a trigonometrical function of the directions of the currents and acted upon, and the line of junction. The law above mentioned we should not be warranted in applying to luminous gases, as for instance, the flame of a candle, since the light of the different parts freely then permeates the mass.

Let \( ABC \) represent a small luminous plane situated obliquely with respect to a point \( A \) and \( ABC'O \), its projection taken perpendicular to \( AP \), and finally \( ab \), a similar plane to the latter taken at a distance \( P = \text{unity} \), the quantity of light emitted by \( ABC \) to the point \( P \) is the same as if it proceeded from \( ABC'O \), and is therefore represented by \( \frac{\text{Area} \ A BC}{\text{Area} \ A BC'} = \frac{\text{Area} \ a b c}{\text{Area} \ a b c'} = i. \) Area \( abc \), where \( i \) represents the intensity of the given luminous plane; hence if we have any luminous surface, we may, by dividing it into very small elements, transfer each element to another situated at a unit of distance from the illuminated point; in other words, we may substitute for this surface that portion of a spherical surface with radius unity which would be cut out by a conical surface having \( P \) for vertex and exactly enveloping the luminous surface. The calculation of the illumination of any small plane by a luminous surface of any figure is thus reduced to that arising from a portion of a spherical surface having that plane placed at its centre.

Example. A distant luminous sphere subtends a given angle \( 2a \) at the eye of an observer: to find its total illumination of a small plane area \( A \) placed at the eye and inclined at a given angle \( \beta \) to the right line joining the eye and the centre of the luminous sphere.

Let \( B P B \) represent the small plane; with centre \( P \) and radius unity describe a circular arc \( C A C \), of which the measure is \( 2a \), and which by rotating round its axis \( \Pi \) generates a spherical surface of equal illuminating power with the given sphere. Let the angle \( B P A = \beta \).

Take a radius \( P Q \) forming an angle \( B P Q = \theta \), and which, by revolving round \( P A \), traces the circle \( D D \). The plane \( B P B \) is taken perpendicular to the plane of the diagram. Let \( \omega \) be the inclination of \( P Q \) to the given plane. The spherical element at \( Q \) is \( \sin \theta, \phi, \times, d\theta d\phi \), where \( \phi \) is the inclination of the plane \( ABC' \) to that of the diagram, and its illuminating power is therefore \( i \sin \phi \sin \theta \), the total illumination is expressed by \( A \int \int i \sin \phi \sin \theta \), the limits of \( \phi \) being \( 0 \) and \( \pi \) (where \( \phi \) is the semicircumference to a unit radius), and of \( \theta \) being \( 0 \) or \( a \). When the intensity is uniform, we get the illumination \( I = A i \int \int \sin \phi \sin \theta \). Draw \( PE \) perpendicular to the plane \( B B \); then in the spherical triangle \( Q A E \) we have \( Q A = \theta, \angle Q A E = \phi, AE = r - \beta, \) and \( QE = r - \beta \); hence by trigonometry:

\[
\sin \omega = \sin \beta \cos \theta + \cos \beta \sin \theta \cos \phi.
\]

Hence \( \int i \sin \omega = 2 i \sin \beta \sin \theta \cos \phi \ldots . . .
\]

and now integrating relative to \( \theta \), we have \( I = A i \sin \beta \sin \theta \), as the illumination required. In this investigation the whole of the light is supposed to fall on the same side of the plane.

If a small hole be formed in the window-shutters of a darkened chamber, the rays of light passing from opposite parts of any luminous object outside cross each other in entering the orifice, since they necessarily proceed in straight lines, and therefore form on the opposite wall of the chamber a perfectly inverted image of the external object, and if the latter be in motion, the image will also move in the contrary direction. If \( b \) be the magnitude of the object, and \( x \) its distance from the hole, and \( a \) the width of the chamber, then the light being supposed to enter directly, the magnitude of the image, by the known laws of similar figures, will be \( m. a^2 \). Again, if \( i \) represent the intensity of the light proceeding from an object at a unit distance, the intensity as it enters the orifice will be \( i \times x \), and this may be taken for its intensity in the image when \( a \), the width of the chamber, is small compared with \( x \), the illumination of the image, for a given quantity of light is inversely proportional to the magnitude of the image, and therefore the brightness of the latter is constant for all distances of the object. The eye is such a chamber, and therefore a luminous object should appear of equal brightness at all distances, but the absorption of light by the atmosphere causes the greater dimness of distant atmospheric objects.

If we suppose the quantity of light absorbed by a transparent medium to be a proportional part of the incident light, then denoting by \( \tau \) the intensity of light which corresponds to a space \( x \) traversed, we have on this hypothesis

\[
I \frac{dx}{dx} = -k \cdot i, \text{ } \tau \text{ being a constant dependent on the particular nature of the medium, and by integration we find } i = l \cdot e^{-kx}
\]

where \( l \) is the initial intensity previous to the light entering the medium, and \( e \) the base of Napierian logarithms.

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therefore the intensity would diminish in a geometrical progression for equal spaces successively traversed.

From these principles we are enabled to calculate the laws which the direct rays of light obey, from their emanation to their incidence. If the body on which the latter takes place be unpolished and opaque, a portion of the light enters into it for a small distance, and is there partially absorbed; the complementary portion is scattered in all directions; the surface therefore becomes itself, to that extent, a source of light, but the composition of the differently coloured rays [Dispersion] may be widely different from that of the incident light: for instance, if the incident light were an equal mixture of red and blue rays, and if the surface favoured the absorption of the latter more than of the former, the scattered or complementary light, then containing more of red than blue rays, would proportionally tinge red the apparent colour of the surface.

Solar light is a compound of various homogeneous-coloured rays; and by their unequal absorption or transmission bodies acquire these apparent colours; but the perception of form arises from the modifications of light [Diffraction] on the borders, ridges, and angles of the surfaces; and the pointer, when he produces a relief on a plane surface, imitates those modifications in the colours which he applies. Hence the perception of form is lost when this incident light is excluded, as in a heated square bar of iron in a dark room, which when turned round its axis seems always to be a flat surface, growing wide and narrow alternately as its edges or faces are turned to the eye; and even when incident light is admitted, a greatness of distance from the eye renders those modifications insensible and invisible under the most favourable circumstances; and thus the heavenly bodies, instead of appearing as round solids, are projected upon a spherical surface, having the eye for the centre, unless where this surface becomes elongated by the greater dimness of rays which traverse unequal portions of absorbing media. When the body exposed to incident light has even a slight polish, the scattered light will then be most conspicuous in the directions in which the regular reflections take place. Such portions of the surface as are situated, relatively to the eye, proper for regular reflections of the incident light, have therefore a much greater apparent brightness than the parts adjacent, and thus assist in producing the ideas of the position and form of the parts.

When the polish of the surface is such that the irregularly scattered rays bear but a small proportion to the regularly reflected light, we become then principally sensible of the effects of the latter in producing images of all the bodies of which the incident light is reflected to the eye: we are thus led to consider the laws of regular reflection.

Let A B represent a surface of mercury at rest, and therefore perfectly horizontal; E T the axis or line of collimation of a telescope, by which we perceive the image by reflection of the star S, and let the angle A C Z of its apparent depression below the horizon be measured. Then turning the telescope in the vertical plane Z C E until its line of collimation with the position T E, in which the star becomes visible; and measuring its apparent zenith distance T E Z' or S C Z, this angle is found invariably to be the complement of the former angle A C Z. Now Z C T being a common tangent of A C Z or T O B, it follows that the angles Z C S, Z C T are equal.

This experiment demonstrates that the reflected ray C T is in the same plane Z C S as the incident ray C S and the normal C Z, and that the angle formed by the reflected ray C T and the perpendicular to the surface, that is, T C Z, or the angle of reflection, is equal to S C Z, the angle of incidence. Such are the laws which govern the reflection of light.

Let us suppose that light consists of a succession of paraxial rays emitted from the luminous body at intervals sufficiently short to produce vision, which hypothesis is generally known as that of emission; then the preceding law would result from the supposition that the luminous molecules, on approaching and entering the reflecting medium, are unable to retain their parallel course proceeding from the medium, and of which the resultant is normal to the surface. For conceive the velocity of the luminous particle as it enters the medium, or rather, as soon as it comes within the influence of its forces, to be decomposed into one parallel and one normal to it. The force of the medium can exercise no influence on the former, and it is therefore the same at the exit of the ray from the influence of the medium as at its entrance. Again, the effect of the normal force on the source of light is to cause the ray to traverse equal velocity to itself, in a space small enough to consider the force uniform, is the product of half this force and the small interval of space, and it is therefore the same in increasing this quantity for the returning, as in diminishing it for the incident ray; and therefore the normal velocities of the two rays are equal, and are in the same ratio as the parallel; from whence it necessarily follows that the angles of incidence and reflection are equal. It admits of easy geometric demonstration that the path of the ray between two fixed points in the same plane is a minimum (neglecting the inessential curvilinear part), in reference to any other supposed positions of these rays, when the reflecting surface is plane, or any curved surface which is tangent externally at the point of incidence to a spheroid having the same radius of curvature at all points on the parallel; and of such a spheroid the spheric internally is a maximum.

If we suppose that light is propagated by undulations in a rare elastic medium from the luminous point as an origin, the velocity of the waves, after reflection, is the same as before incidence, since the medium is the same; and hence, as in sound, the angle of reflection would still be the same as that of incidence. [Echo.] Thus both the hypotheses of emission and of undulations satisfactorily account for this fundamental law.

If the reflected ray of light were transformed to an incident, reciprocally the path of the incident would become that of the reflected. The same is true for any number of reflections, the angles of incidence and reflection being the same as before incidence, since the medium is the same; hence, as in sound, the angle of reflection would still be the same as that of incidence. [Echo.] Thus both the hypotheses of emission and of undulations satisfactorily account for this fundamental law.

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The deviation of a ray of light, after it has undergone any alteration in its course by the action of media, is the inclination of the primitive and final directions of the ray taken in the sense in which they are moving. This deviation by one reflection on any surface is the sum of the double the incidence, or is the double of the inclination of either ray to the medium.

A plane of reflection contains a successive incident and reflected ray, and is necessarily perpendicular to the corresponding reflecting surface.

When there are successive reflections, the inclination of the plane of the first to that of the last reflection is the deviation in plane, the last ray being then in a different plane from the first, the first kind of deviation or that of direction is the angle between the first ray produced beyond the incident point (which is the course the ray would have pursued if unreflected), and a parallel to the last ray drawn from the same incident point.

When light is reflected by two parallel planes there will be neither deviation in plane nor in direction; more generally there will be no deviation in plane when the first incident ray is in a plane perpendicular to the intersection of the two reflecting planes.

In the latter case, where both reflections take place in the same plane, let us consider the amount of the deviation in direction.

Let B C D represent the course of the ray reflected at B and C by the reflecting planes E B, E C. Let B E be the first ray produced, and B D the parallel to the final ray; then
the angle nBd is the deviation. When the other two rays are at opposite sides of the intermediate ray BC (fig. 1), then the deviation of CD from AB is the difference of the two deviations at B and C, or twice the angle BCF - twice the angle CBE, that is, 2\angle E, or double the inclination of the mirrors. But when AB, CD are at the same side of BC, the total deviation is the sum of the deviations at B and C, or twice the angle EBC + twice the angle ECB, which is the same as 360° - 2\angle E. This is a re-entrant angle when E is acute, and therefore we may then substitute for it the corresponding natural angle 3\angle E. Hence the deviation is doubly the inclination of the mirrors when acute, and double its supplement when obtuse. This property is turned to excellent use in Hadley's sextant. In general, when there are any number of reflections in one plane, the total deviation is the sum of the deviations at each reflection, giving negative signs to those where the rays are turned in a contrary way to the first reflection; this sum is independent of the first angle of incidence when the number of planes is even.

With the exception of this case the ray will deviate not only in direction but in plane, and as the determination of these deviations is important from their connection with the subject of polarized light, we shall therefore trace the reflected rays by analytical geometry.

Take a point a situated at the first point of incidence, and make the first mirror the plane of xy, and the plane of the first reflection that of zx, referred to which the equation of the second mirror may be represented by Ax + By + Cz + 1, and let a be the first angle of incidence. Then the equations to the first incident ray are \(x = a \tan a, y = 0, \) and to the intermediate or first reflected ray \(x = x - a \tan a, y = 0.\) Hence we easily find the co-ordinates of the second point of incidence a, b, c, to be expressed as: \(d = p \sin a, b = c = p \cos a\) where p is the reciprocal of \(A \sin a - C \cos a.\)

The equations to the normal of the second mirror are \(x - a = m(z - c), y = B(z - c)\); the plane which passes through this normal and the intermediate ray to that of the second reflection, and is defined by the equation \(B(x \cos a - z \sin a) - (A \cos a - B \sin a) = 0, a \)-y for abbreviation. The inclination \(\phi\) of this plane to that of \(x z\) is the deviation in plane, and we readily find \(q \tan \phi = B,\) by which that deviation is known.

Suppose the equations to the final reflective ray are \(x = a - m(z - c), y = m(z - c),\) and substitute in the equation to the second reflecting plane, we find B (cos a - sin a) = -mq. The cosine of the second angle of reflection is \(1/m\tan (a) = \cos a - m \sin 0\) and of the second angle of incidence is \(1/m \tan (a) = \cos a + m \sin 0\). The cosine of this angle 

When the deviation in plane is a right angle, it is required to find the deviation in direction and the second angle of incidence.

Since generally \(\tan \phi = B/m,\) and \(\phi\) is a right angle, therefore \(q = 0,\) which gives the two relations \(A = C \tan a, m = \tan (a).\) Let \(a\) be the second angle of incidence, we have \(\cos a' = \sqrt{(C + B \cos a) \tan a + m} = \cos a + B \cos a;\) or \(\cos 2a' = C^2 - B^2 \cos^2 a;\) we also find \(n = C^2 - B \cos a;\) and if D be the required deviation, we have in this case \(D = C \cos 2a - nB \cos a = \cos 2a \cdot \cos a'.\) Moreover if I be the inclination of the two mirrors \(\cos I = \sqrt{A^2 + B^2 + C^2} = C \cos a + \sqrt{(C + B \cos a)}, \) \(\cos a = \cos a',\) and in general if \(a, a', \phi, a\) are given, \(\cos (I)\) is very easily found.

When light diverging from any luminous point falls on a plane reflecting surface, it will after reflection diverge accurately from a point similarly situated at the opposite side of the mirror. Let S be the luminous point, DE the mirror, draw SA perpendicular to the mirror, and produce it until \(AS = AS;\) let SB be an incident ray, join SB, and produce it to C, then it is evident that \(\angle SBA = \angle SBA = \angle CBE.\) Now BC, being in the normal plane SAB and making with the normal BF, an angle CBE equal to the angle \(SBF\) of incidence, must therefore be the reflected ray. The position of \(a\) being independent of that of B, the point of incidence, it follows that every other reflected ray will diverge from the same point. Thus the reflected light will appear to an eye \(e\) as if proceeding from a point \(p\) behind the mirror similarly situated with \(S.\)

Hence if any body PQ be placed before a mirror DE, the light which emanates from \(P\) will appear after reflection to proceed from the similarly situated point \(P\) behind the mirror, and thus an image \(pq\) exactly similar to the body \(PQ\) will be seen by looking at the mirror; the common looking-glass is a familiar example.

If we seek generally the nature of a surface by which light converging to or diverging from one given point may after reflection diverge from or converge to another, it will be simplest to seek first the plane curve possessing the same property, then the surface generated by the revolution of this curve round an axis passing through the two given points will evidently be of the nature required.

Let \(r, r'\) be the radii vectores drawn from a point of the curve to the given points, one will correspond to an incident, the other to a reflected ray; and let \(s\) be an arc of the curve measured from a fixed point to that of incidence, then \(\frac{dr}{ds}\) is the sine of the angle of incidence, using the upper or lower sine according as \(r\) increases or diminishes with \(s;\) hence we must have \(\frac{dr}{ds} \cdot \frac{dr'}{ds} = 0,\) whereas \(r = r' = 0.\)

Taking the upper sign we have an ellipse, or with the lower an hyperbola, of which the two fixed points are the foci; hence the prolate spheroidal and hyperboloid are the surfaces sought. But if the incident light fall on parallel rays, and is reflected to one point, take the axis of \(x\) through this.
point in the direction of the rays, the sine of incidence is then \( \frac{dx}{da} \), whence \( \frac{dr}{dx} = 0 \), \( r' = x = \text{const} \), which is the equation to a parabola having the given point for focus; therefore the parabola of revolution is the required surface.

But when light diverging from a point falls on a surface, after reflection it generally does not again converge to a point, or diverge from one accurately, but each infinitesimal pencil after reflection converging to or diverging from a point, the locus of all such points forms an illuminated surface called a caustic by reflection, or catacaustic: these equations and properties are rather objects of analytical exercise than of any practical use. [Optics.]

The caustic is a luminous space when the incident light proceeds from a surface. [Caucus.

In the case of reflection, the light is returned to the medium in which it moved previous to incidence; but when incident on a transparent medium of greater density than that of the medium in which it originally moved, a portion of the light is reflected, but another portion enters the medium, and then proceeds generally in one straight course in the plane of incidence, but not in the original direction, having a deviation in course, though not in plane, and sometimes, as in certain crystallized media, it splits into two rays, one in the plane of incidence before, the other in a plane determined by the nature of the crystal.

The same phenomena take place when light passes from a denser to a rarer medium, except that in this case the whole of the light may under certain incidence be totally reflected.

This alteration of the path of light passing from one medium to another, which is familiarly observed in the apparently bent form of a straight stick partially immersed in water in an oblique direction, is called refraction; that portion which is in the plane of incidence is called the ordinary ray, and the other portion, which occurs in the double refraction of uni-axial crystals, is called the extraordinary ray. We shall first attend to the laws of single refraction.

Let NPC represent a solar beam in vacuo, and incident at C on a transparent medium (as water), to the surface of which DCE is normal. When the medium is fluid, place a graduated circle DSE in the plane of incidence with its centre at C; a portion of the light will be reflected in the direction CL, and another entering the medium will be refracted in the direction CR. If uninfluenced by the medium, its direction would have been CS. The angle RCE is the angle of refraction, DCE or ECS of incidence, and SCR of deviation. The arcs DP, DR are equal by the law of reflection, and if we compare the arcs DP, ER, their sines will be found in a constant ratio, depending on the nature of the medium, but independent of the angle of incidence. Thus if \( I \) be the angle of incidence, and \( R \) that of refraction, the two are connected by the simple relation \( \sin I = \mu \sin R \). The constant \( \mu \) peculiar to the medium is called its index of refraction. When the medium is solid, we can easily compare the tangents of the angles, and thence their sines.

The above law will be found rigorously exact.

Let \( V \) be the velocity of the ray before incidence, which is decomposable into a horizontal velocity, \( V \sin I \), and a normal one, \( V \cos I \). The former will not be affected by the medium; the square of the latter will be increased at the confines of the medium by a quantity \( n^2 \), which is the sum of the products of half the force into the element of the normal throughout that inappreciable space in which the forces of the medium do not destroy each other in consequence of proximity to the surface. Therefore the normal velocity of the refracted ray is \( \sqrt{V^2 \cos I + n^2} \) and its actual velocity \( \sqrt{V^2 + n^2} \); so that the horizontal velocity in the medium is \( \sqrt{V^2 + n^2} \) Sin R, which, being equated with V Sin I, its value before incidence gives

\[ \sin I' = \mu \sin I, \text{ where } \mu = \frac{\sqrt{V^2 + n^2}}{V} \]

How are we to account for the reflected ray CL? Why is not the whole incident light refracted? Even when the incident light is perpendicular to the refracting surface, a portion of the light is reflected; and when the ray has but a very small inclination to the surface, a portion will yet be intromitted. Hence we may consider generally that the incident light consists of portions differently disposed to be subject to the repulsive and attractive forces of the medium, or, in Newtonian language, are in fit of easy reflexion or transmission. When the angle of incidence increases, the normal velocity of the ray diminishes, the effect of the repulsive forces is therefore augmented, or the reflexion is more copious.

If \( r \), \( r' \) are any portions of the incident and refracted rays measured to fixed points in their directions, and \( V, V' \) the corresponding velocities, and we make ACB the axis of \( x \), we have \( V \sin I = \frac{dr}{dx} \); \( V' \sin I' = \frac{dr'}{dx} \); and since

\[ V \sin I = V' \sin I', \text{ therefore } \frac{dr}{dx} = \frac{V'}{V} \frac{dr'}{dx} \]

where the ratio of \( V \) to \( V' \) is the time in which the change of the wave traverses those spaces, and this interval must be the same for the various points of the internal wave, therefore

\[ \frac{dr}{dx} \left( \frac{r}{V} + r' \right) = 0, \text{ or } \frac{dr}{dx} \frac{r}{V} = -\frac{r'}{V}. \]

The ratio of \( V \) to \( V' \) reduces to \( \sin I \) to \( \sin I' \) is still constant, but is the inverse of that obtained by the theory of emission. Hence there is a capital distinction between the two theories, for the velocity of light passing from a rarer to a denser medium must be increased by the doctrine of emission, and diminished by the wave theory.

The fact that the differently coloured rays have different refractive indices offers a great difficulty to the latter theory, inasmuch as their internal velocities must be different, which is contrary to the laws of elastic fluids. The circumstances are however different, as the fluid in this case envelops the material particles of the medium, and its waves may be transmitted by their propagation.

If \( \mu \) be the index of refraction when light passes from vacuum to a medium (A), and \( \mu' \) when it passes from vacuum to another medium (A'), then \( \mu' \) is the index when the ray is transmitted directly from the former to the latter.

For if we look at a star through a medium bounded by parallel planes, as a plate of glass, its position will not be affected, and therefore the emergent light is parallel to the incident; but since the second angle of incidence is equal to the first angle of refraction by the parallelism of the planes, and the second angle of refraction is equal to the first by the same parallelism of the rays, therefore the index of refraction out of a medium into vacuum is the reciprocal of that from vacuum into the medium. Again, if we place together two plates of different refracting media A, A', the emergent light is still parallel to the incident.

Now the second angle of incidence or first of refraction is given by the equation \( \sin I' = \frac{1}{\mu} \sin I \); and the second angle of refraction or third of incidence, by the equation

\[ \sin I' = \mu' \sin I'. \]

Hence, generally, if the emergent ray be supposed to become incident, the latter would take the place of the emergent.

This fact shows that the velocity of light which traverses several media is, the same as if transmitted directly from vacuum to the last medium, which is consonant to both the theories of light. In the wave theory, the velocity of the waves in a medium are independent of the mode of their
propagation, and that in order to produce the increment of the straightness of the wave velocity generated at one surface of a medium destroyed by like forces, on its emergence at the second, the only increment it finally receives is that generated by the surface of the last medium it enters, and which it would receive if it entered this medium directly from vacuum.

The index of refraction is greater than unity from a rarer to a denser medium, and less than unity from a denser to a rarer. Hence in the latter case there is a limit to the angle of incidence, beyond which it is impossible for the ray to emerge into the rarer medium, for since \( \sin R = \sin I \) then it follows that \( R \) is a right angle when \( \sin I = \mu \), or the emergent ray is then parallel to the surface; but if \( \sin I > \mu \), then \( \sin R > 1 \), which being impossible, it follows that the light must first be reflected or refracted, as the case may be, and then traced the progress of a ray passing through a medium terminated by planes inclined at a given angle \( \alpha \), as in the case of light refracted by a glass prism. Let \( \mu \) be the indices of refraction into the medium through its first bounding plane, and out of it through the second, and let \( I, R \), be the first angles of incidence and refraction, \( I', R' \), the second, and \( D \) the total deviation, and suppose the plane of incidence to be perpendicular to both planes, so that there may be no deviation in planes; the following equations fully describe the progress of the ray: Let \( I, R, I', R' \) be the angles of the circle.

\[
\cos I = \mu \cos R \quad \frac{dR}{dI} = \frac{dI'}{dR'} \quad \cos I' = \mu' \cos R' \quad \frac{dR'}{dI'} = \frac{dI}{dR} \quad \cos I'' = \mu'' \cos R''
\]

by squaring \( (1 - \sin^2 1') = (\mu'' - \sin^2 1) = (\mu' - \sin^2 1) \)

or if \( m = \mu' \) then \( (m^2 - 1) \cos^2 I = (\mu - 1) \cos^2 R' \)

and \( \frac{1 - m^2}{m^2} \cos^2 R = \left(1 - \frac{1}{m^2}\right) \cos^2 I'. \)

When the ray after the second refraction moves in the same medium as before the first incidence, we find the minimum deviation when \( I = R' \) and \( R = I' \); the internal part of the ray is then equally inclined to both planes.

We have then \( R = \frac{\mu}{\mu'} \), which affords a simple method of determining the index of refraction of media capable of being formed into prisms.

By a process similar to that employed already for reflected rays, it is easy to find both the deviations in plane and in direction, when the place of incidence is no longer perpendicular to the refracting surfaces.

When light emanating from one point is refracted accurately to another, if \( r, r' \) represent the incident and refracted rays, and \( s \) an arc of the curve by the revolution of which the refracting surface is generated, \( ds \) and \( dr \) are the sines of the angles of incidence and refraction (abstracting from their algebraical signs), therefore \( \frac{ds}{dr} = \mu - \mu' = 0 \) and \( s = \int \frac{dr}{\mu - \mu'} \).

This equation belongs generally to a curve of the fourth order, but if \( \mu \) be infinite, or the incident light parallel to the axis, it gives a conic section, and if the arbitrary constant vanishes the equation \( r = \mu' r' \) represents a circle.

If one surface be given, it is easy to find a second by which homogeneous light may be refracted accurately to a given point.

When light is incident on the generality of crystallized bodies, the ray is refracted in two directions, one of which in uni-axial crystals obeys the ordinary law of refraction, but neither in bi-axial crystals. On the theory of emission the forces cannot here be simply normal to the faces of the crystals, but have a connexion with the directions of the axes of crystallization, while on that of undulation the density of the fluid of light is the same in all directions, and the form of the wave-surface ceases to be spherical. The further consideration of that subject will be resumed in the article POLARIZATION.

The formation of and instances by reflection and refraction follows from the simple laws here discussed, for an account of which the reader may refer to OPTICS. The description of the instruments constructed to take advantage of the properties of light being given in LENS, MICROSCOPE; MIROBRO; TILTED.

The phenomena of diffracted and of polarized light afford more refined criteria of the probabilities of the contending theories of light than the ordinary laws noticed in this article; however, if the dispersion of light offers some difficulty in the doctrine of undulations, it must be looked to the theory of emission in the uniform velocity of light from the heavenly bodies, though differing in colour and probably in constitution. This ground of improbability is strengthened by observing that on the same theory the different refractive indices belonging to different media show that the molecular powers acting at or near their surfaces generate different instead of uniform velocities of the intro- mitted light. The proportion by which the velocity of light from any fixed planet possessing aberration may be calculated is the following:

\[ \text{Vel. of earth in orbit} : \text{Vel. of light} :: \text{Sin aberration} : \text{Sin earth's way}. \]

By the last term is meant the angle which a right line drawn from the earth to the star forms with the direction in which the earth is then moving; in the planetary bodies we must use the relative velocity of the earth. [ABERRATION.] The production of colours by ordinary refraction is considered in the articles DISPERSION and RAINBOW; for that produced by light passing near the edges of bodies, the reader may consult DIFFRACTION.

LIGHT, BAROMETRICAL. Many barometers, when the mercury is sunk in the dark, exhibit a luminous appearance in the vacuum over the mercury; the light being sometimes apparently uniform throughout the vacuum, sometimes appearing almost entirely on the surface of the mercury. This appearance was first noticed by Pecard, and afterwards by Cassini, Lahire, &c. Though it appears to be an electrical phenomenon, we are not aware that any satisfactory explanation has been given of it, particularly of the reason why it appears in some barometers and not in others, and why the same barometer sometimes loses the property, and afterwards recovers it.

For a full account of the discovery, and of early hypotheses respecting it, see the first volume of De Luc's 'Recherches sur les Modification de l'Atmosphère.'

LIGHT-EQUATION. In consequence of the time employed by light to traverse the solar system, phenomena are not seen at the exact moment of their happening. The first step in astronomical prediction is the finding the absolute moment of time at which a phenomenon occurs; the next is to apply a correction which gives the time at which it is seen at the place for which the prediction is made. This correction or equation is called the light-equation. This term is however principally applied to the correction which is necessary in the case of eclipses of Jupiter's satellites.

LIGHT, CHEMICAL AGENCY OF. There are several cases in which light exerts direct chemical agency without its being capable of the production of heat and therefore of sensuous impressions when it is intense. Thus, if a mixture of equal volumes of chlorine and hydrogen gases be kept in the dark, no combination takes place between them; but in the light of day they unite slowly, and form hydrochloric acid gas; while, if exposed to the direct solar rays, the combination occurs instantaneously, and with loud explosion.

In the same way, chlorine gas and oxide of carbon, when mixed, unite by the direct action of the sun's rays; but this effect is not produced by the agency of heat, although the latter is capable of causing chlorine and hydrogen to combine.

These are instances of the power of light and the sun's rays in effecting chemical combination, but there are cases in which it possesses the opposite power of causing chemical decomposition.

Thus, if colourless nitric acid be exposed to the sun's
rays, it becomes yellow, and afterwards red, and a quantity of oxygen is liberated by the partial decomposition effected by the solar rays. This gas may be received in glasses properly arranged for the purpose. So also when an aqueous solution of chlorine is exposed to solar light, the water is decomposed, the chlorine unites with its hydrogen to form hydrochloric acid, and oxygen gas is evolved. If also a piece of paper be dipped in a solution of nitrate of silver, and it be kept in the dark, little alternation ensues; but if the paper be exposed to the light, it becomes black, on account of the decomposition of the oxide of silver, and deposition of metallic silver on the paper.

The action of light on the chloride of silver is very remarkable; and it occurs very quickly. This substance, as long as the light, even and horizontal, heat, remains perfectly colourless; but the sun's rays, and even diffused daylight, by their peculiar action blacken it speedily. This effect is most strongly produced by what are called the chromatic rays of the spectrum, which impart neither light nor heat; their greatest power is exerted beyond the violet portion of the prismatic spectrum, and the property gradually diminishes in approaching the green rays, and beyond this it is totally wanting. It appears therefore that there are two different causes of the decomposition of silver chloride, which are more remote in consequence of which they are partly diffused throughout the blue, indigo, and violet rays.

LIGHTFOOT, JOHN, born 1602, died 1675, one of those English divines who belong peculiarly to the class called Presbyterians, is, without doubt, written notes on the Holy Scriptures. By the mass of readers these persons are not properly distinguished from each other; yet each has his own peculiarity: that of Dr. Lightfoot being an intimate acquaintance with the Subliminal Substance, is perhaps more usual. In this perhaps no English scholar has ever equalled him, and he has applied this species of knowledge extensively, and in many instances successfully, to the illustration of the sacred writings. His works are collected in two large folio volumes. The two first volumes of his life prefixed, to which are prefixed the reader for particular details. He was the son of a clergyman at Uttoxeter in Staffordshire, studied at Cambridge for the church, was ordained, and settled early in life on the living of Stone in his native county. There he laboured with zeal, and obtained the respect of the people. He was a member of the Assembly of divines, accepted the living of St. Bartholomew beside the Exchange, and was made master of Catherine Hall by the parliamentary visitation of the University of Cambridge. He had also the living of Great Munden in Hertfordshire, which was presented to him in 1644. On the Restoration of King Charles II., when the Church of England was resettled in its ancient form and order, Lightfoot continued with the terms of the Act of Uniformity. From that time he chiefly resided on his living at Great Munden, where he had a people who could not estimate his learning and value, but to whom he was very strongly attached. He used, when absent, to say, that he longed to be among his russet coats at Munden.

LIGHT-HOUSEES are buildings erected along the seashore, or upon rocks, from which lights are exhibited at night for the direction of mariners. Floating lights perform a very different service. They are seen, from being shown from towers or masts, fixed in separate situations, generally as beacons to enable ships to avoid shoals or sunken rocks in the metastasis of great rivers. It is probably from the desire of preserving property, rather than from the wish to provide for personal safety, that the systematic establishment of light-houses has sprung; and it is the practice, in this country at least, to collect the funds required for keeping up our light-houses from the owners of vessels, the proportion of charge proportioned to the size of the ship, as the best general test of the amount of property to be secured. The most celebrated light-house of ancient times was that erected about B.C. 283, in the reign of Polymny, or Ptolemy Phyladolphus, on the island of Pharos opposite to Alexandria. It was 3,261 feet in height, and reflected the rays from the island on which it stood, that light-houses have in many countries received their generic name of Pharo. The most celebrated light-houses of modern times are that on Bell-rock opposite to the Frith of Tay, and that on the Eddystone rocks opposite to Plymouth sound.

The erection of light-houses in this country has not proceeded upon any systematic plan; but in every instance they have been constructed simply because of the disastrous losses that had occurred from want of them. From this cause it arises that our light-house establishments in the several parts of the United Kingdom are conducted under entirely different systems. We have in Scotland the constitution of the management, the rates or amount of the light-dues, and the principle on which they are levied. In England there are now 44 light-houses and 13 floating lights, which are considered as general lights, besides 46 light-houses and 4 floating lights, which are levied at a still greater rate, and 64 fixed and 177 floating lights. Of the general lights 30 (7) light-houses and the whole of the floating lights, 13 in number, are under the management of the Corporation of the Trinity House of Deptford Strand; 3 are in private hands under leases granted by the Trinity-House Board; 7 are in private hands under leases granted by the crown, and the remaining 4 are held by individuals under patents or by authority of acts of parliament.

In Scotland there are 25 light-houses under the management of the Board entitled the Commissioners for Northern Lights, incorporated by the act 38 Geo. III., c. 58, and consisting of 25 commissioners, who hold the office by virtue of various other public situations held by them. There are besides in Scotland 18 local or harbour lights. In Ireland there are 24 light-houses, of which 16 are generally light-houses, besides 9 harbour light-houses under the corporation for preserving and improving the port of Dublin, and 5 other harbour light-houses maintained by various local authorities; making altogether 29 light-houses and 16 floating lights, which are general lights, and 75 light-houses and 4 floating lights, which are local or harbour lights; being in the whole 165 light-houses and 20 floating lights constantly maintained on the coasts and at the entrances of the harbours and estuaries.

The following statement contains the amount of light-dues collected for the general lights, the charges of collection, the expense of maintaining the different light-houses and floating lights, and the net surplus receipt in the year 1832, 24, as recorded in the Minutes of the Select Committee of the House of Commons upon the state and management of light-houses, presented in August, 1834:

<table>
<thead>
<tr>
<th>By whom held</th>
<th>Gross sum</th>
<th>Expenses</th>
<th>Collection</th>
<th>Surplus</th>
<th>Maint.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>By Trinity House, London</td>
<td>£ 8, 041</td>
<td>£ 6, 670</td>
<td>£ 32, 004</td>
<td>£ 40, 467</td>
<td></td>
<td></td>
</tr>
<tr>
<td>By private individuals</td>
<td>£ 79, 676</td>
<td>£ 10, 244</td>
<td>£ 9, 109</td>
<td>£ 60, 323</td>
<td></td>
<td></td>
</tr>
<tr>
<td>By Commissioners for Northern Lights, Scotland</td>
<td>£ 35, 256</td>
<td>£ 31, 261</td>
<td>£ 11, 314</td>
<td>£ 20, 951</td>
<td></td>
<td></td>
</tr>
<tr>
<td>By Commissioners Ballast-Board, Ireland</td>
<td>£ 42, 061</td>
<td>£ 3, 266</td>
<td>£ 18, 565</td>
<td>£ 21, 586</td>
<td></td>
<td></td>
</tr>
<tr>
<td>By Ballast-Board, Ireland</td>
<td>£ 24, 304</td>
<td>£ 22, 135</td>
<td>£ 74, 832</td>
<td>£ 143, 337</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A principal object in the establishment of these buildings is to give intimation to vessels approaching the coast during the night as to the place in which they are. It is therefore of importance that the lights exhibited on the same line of coast should have some essential differences, so as to be readily distinguishable by mariners. The different appearances thus required are given by having two lights placed either vertically or horizontally with respect to each other, or three lights, as at the Casket rocks, or by causing the lights to revolve so as to appear all at once, or to appear at intervals, or to remain in sight only for a given number of seconds at each appearance; or by the employment of lamps of different colours, as in some of the harbour-lights, which do not require to be seen at a great distance.

The most marked use of light-houses in this country is that of placing an argand burner in the focus of a parabolic reflector. This instrument is made of silver strengthened with copper, and is about 3 or 4 inches in focal length and 21 inches in diameter. The number and the arrangement of these reflectors on this building is very great. Each light-house depends upon the light being fixed or revolving, and upon other circumstances connected with the situation and importance of the light-house. The mode in use in the light-houses of France consists in...
placing a large argand lamp, having four concentric wicks, and giving a very powerful light, in the centre of the upper part of the building, and placing around the lamp a series of glass lenses of a peculiar construction; thus using a reflector instead of a reflecting instrument to collect the light. This produces only one line of light, as large as the greatest number of separate rings or zones, whose common surfaces preserve nearly the same curvature as if they constituted portions of one complete lens, the interior and useless part of the light being removed. To form a lens of such magnitude out of one piece of glass would be hardly possible, and if it were possible, the necessary thickness of the glass would greatly obstruct the light: the merit of the invention consists in building it of separate rings. The light thus formed is much brighter than has been produced by a French apparatus, as stated by some common reflectors; and it is calculated that by a consumption of oil equal to that of 17 common argand lamps with reflectors an effect is produced equal to that of 50 lamps and rings.

There is this further advantage in the French over the English apparatus, that in the English light-house of equal illuminating power with the French there would be daily employment in trimming 30 lamps, and cleaning an equal number of reflectors, which, having a surface so great as to require identifying the position of each, while in the French light-house there is only one lamp to trim, and the lenses, being of glass, require little or no labour to keep them bright. On the other hand these obsolete lamps have not the wide dispersive range which is so essential to the illuminating power of the French light.

On the northern and western coasts of France there are 89 excellent lights; and the Dutch have 20 lights on their sea-coast and in the Zuider Zee. The Admiralty have lately published official lists of all these lights, and the vessels passing within certain limits vary considerably in respect of different lights: for some of those which are under the management of the Trinity House as little as a farthing per ton is charged on every half-penny pound of foreign vessel; while for other lights the rates are as high as a penny and two-pence per ton on English and foreign ships respectively.

The ships belonging to countries with which we have treaties of reciprocity are entitled to admission to our ports on a par with vessels from our own ports; and accordingly pay no higher rate of light-dues. The Trinity House has relinquished, in these cases, the right to any increased charge; but in the case of those light-houses which are held by private individuals, the difference is made good to those lessees by a deduction of a thirteenth from the proceeds of a thousand per cent. In the year 1832, the latest year of which we have the record, the receipts were 35,182l.

Light-dues are collected not only upon ships frequenting our northern ports, but upon every vessel, however small, which is driven in by stress of weather, or if they come within sight of our light-houses in the prosecution of their voyages from one foreign port to another, regulations which have occasioned much dissatisfaction, and which are perhaps justly chargeable with exception.

LIGHTNING. The general circumstances attendant on a thunder-storm are familiar to most persons. It will however be useful to state some of the most prominent, with a view to their explanation when regarded as electrical phenomena.

At first we see light clouds forming with jagged edges, the relative motions of which are frequently opposite and variable. The atmosphere at the surface of the earth en- countered by the cloud is always several times more rarefied, on account of temperature, as well as considerable barometric and hydro- metric changes, producing on the animal system the sensations of closeness, faintness, and oppression, and appearing even to the brute creation indicative of some awful and impending change. Some of these light clouds are not new formed on the head, as are now and then seen in summer time. But storms are also produced by rapid changes in the density of atmospheric cur- rents, for instance when the equinoctial gales usually set in; or, as in a recent instance, when the late violent and destructive gales (we write in December, 1838), crossing the Atlantic with great velocity, were received with a violent reception, and becoming mixed with various strata of the air through the regions which they traversed, produced in several places most destructive thunder-storms.

The colour of the lightning is a variable yellow, depending much on the density and composition of the strata of air through which the discharge takes place.

Franklin in America, and De Lomas in France, commenced, independently of each other, a series of experiments on the power of the discharge through the body. [ELECTRICITY.] Their identity might well be suspected from the number of analogies known to exist between them. For instance, the zigzag path of the electric spark from an instrument to a conductor resembles on a small scale the course of forked lightning; or, the pointed bodies in preference to others, and lightning also prefers, ceriter paribus, the best electrical conductors. Both can dissolve metal and inflame combustibles, destroy sight and animal life, and reverse the poles of a magnet. Franklin’s experiments on the precipitation of the lightning, and the discovery that it is accompanied by a discharge of electricity, give us new views of the influence of electricity. The most noticeable experiment was the flight of a kite, by which the supply of electricity from the cloud became more copious, and by the smartness of the shock ensuing, the danger of prolonging the experiment was sufficiently indicated.

Similar experiments were afterwards made by an assistant of Dobrard at Marly la Ville, by Canton, Wilson, Kintz, and others, to which the supposed identity was completely substantiated. Professor Richman of St. Petersburg attached a simple species of electrometer to his apparatus for measuring the electric current produced in the discharge. Immediately after a loud clap, he proceeded to read off the indication of his instrument, when a globe of electric fire was discharged through his body; he fell instantly on a couch quite dead, and departed this life within forty-eight hours (a.d. 1783); his assistant was also much injured.

These experiments show the phenomena of electric induction or influence. [ELECTRICITY.] The clouds frequently change from negative to positive electricity; they also influence the portions of the earth near them, and sometimes so strongly as to draw the lightning from the earth, which is accordingly termed ascending lightning. The phenomena remarked this singular phenomenon, for Pile describes the land or Earth as emitting thunders.

When the electric discharge permeates generally the surrounding masses of weakly electrised vapour, the appearance then is that of a sudden and wide illumination, as in summer, or sheet-lightning. This lightning is harmless, and by indicating the position of the thunder-cloud.

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proceeded from it, which arose from the succession of sparks. In the former case the sound appeared to play round a gilt hat-band worn by one of the travellers.

The temperature, the electricity of the earth in contact with the air, and that produced by the chemical changes of the various matters of the globe, are the great causes of atmospheric electricity: thus, earthquakes, volcanic eruptions, &c., are generally accompanied by violent thunder-storms.

(For further information on this subject we refer to THUNDER-Rocks; also Bertholon, De l'Électricité des Météores; Franklin's Letters; Becarria, Lettere dell' Elettricista.)

LIGHTS, NORTHERN. In continuation of the article AURORA BOREALIS, we may add that the recommendations of the British Association have produced various good observations of these phenomena. The directions how to observe them (abstracted in the article cited) are reprinted in vol. iv., p. xxxv. of their Reports.

Of late years these phenomena seem to have become more common in England: one in particular (see Mr. Christie's communication, vol. vi., p. 29, Rep. B. Ass.) was observed June 24, 1837, at a time of the year in which no such appearance is recorded as observed in England. In the preceding February occurred 'one of the most extraordinary on record in these latitudes,' but during the very cold winter of 1837-38 hardly any such phenomenon appeared.

By three corresponding observations (vol. ii., p. 401) of the bright arches of the aurora of March 21, 1833, it appears that these arches were 'similar to parallels of latitude round the horizon. It would further be observed here that a general law, no more valuable step will ever have been made towards a constant explanation of these meteorological comets. It is to be hoped that persons living in favourable parts of the country, and disposed to observe this phenomenon, will not neglect to qualify themselves for observing such appearances; a single observation in connection with others made at different places may be of great value.

LIGNIN, vol. xiii. LIGNIN, vegetable fibre, is the substance which remains after a plant or a portion of it has been treated with water, weak alkaline and acid solutions, with alcohol and arboth, in order to dissolve all the matters soluble in these agents.

Lignin, properly speaking, constitutes the skeleton of the trunk and branches of the tree. It varies, in different kinds, as to its colour, hardness, texture, and specific gravity; and it is probable, on account of these differences, that there are several kinds. But these various kinds of lignin are always porous, because it contains longitudinal vessels, and it is easy to split it in the direction assumed by them. The pores of lignin, when fresh, contain the juices of different substances of the wood, which will be dried by the water evaporating rates, and leaves the dry matter which it held dissolved. It is on this account that wood contracts, in drying, in breadth, but preserves its height. It is commonly admitted that timber in general consists of ninety-six parts of lignin and four parts of the substances which were held in solution by the evaporated moisture.

When lignin has been dried, it is a non-conductor of electricity; but on account of its porous nature and the deliquescent substances which it contains, it acquires moisture when exposed to the air, and then becomes a conductor: this absorption may be prevented by varnish. It is well known that wood sways in water: but when deprived of air it becomes heavier and sinks in it; its specific gravity then increases to 1.1, which is that of oak to that of 1.53, the specific gravity of oak and beech. Wood is gradually decomposed when exposed to the simultaneous influence of light, air, and water; but under water it may be preserved for an almost indefinite period, as is proved by the trunks of trees which have been found in a perfectly well-preserved state, buried in the bottom of peat-mosses, and which must have been there from a period anterior to history: also when it is kept perfectly dry it is not subject to decay. The wood and those portions of the plant which are found in it, are preserved in the same way, although some of it must be about 3000 years old.

When wood or lignin is treated with chlorine, it becomes white, but does not dissolve. Concentrated sulphuric acid in it turns into gum; the mass thus obtained be boiled with water, it is changed into grape-sugar. When treated with sulphuric acid, it is decomposed, becomes black owing to the separation of charcoal, while sulphurous and carbonic acid gases are evolved. When treated with strong nitric acid, oxalic acid is obtained; when boiled in concentrated hydrochloric acid, it becomes first reddish, then black; in cold water, it is yellow, and afterwards black, without being soluble either in the acid or in water.

The caustic alkali dissolved in a large quantity of water act but feebly on wood; but if sawdust be treated with an equal weight of hydrate of potash dissolved in a little water, it yields water with an empyreumatic smell, and a homogenous liquid is formed; when this has cooled, it is of a blackish brown colour, and contains oxalic and acetic acids, with a substance resembling soot treated with an alkali. When wood is treated with iron cylinders with the necessary arrangements for the condensation of the volatile products, a great variety of important substances are obtained, besides charcoal: in this way are procured acetetic acid, commonly called, till purified, pyroglucous acid, pyrogallic acid, creosote, and tarry matter.

LIGNITE. Fossil wood carbonized to a certain degree, but retaining distinctly its woody texture, is thus designated: a greater degree of change constitutes cannel and common coal, in which the original structure of the constituent plants can only with difficulty be traced; a less change belongs to peat.

Dr. MacCulloch observes:—'In its chemical properties lignite holds a station intermediate between peat and coal; while in some cases it differs very materially from both. It is found in brown, and sometimes in grey, clay, and in some cases it may be traced; the brown and more organized kinds approaching very near to peat, while the more compact kinds, such as jet, approximate to coal.' (On Rocks, p. 636.)

Its synopsis of lignite runs thus:—'It is found in brown, and sometimes in grey, clay, and in some cases it may be traced; the brown and more organized kinds approaching very near to peat, while the more compact kinds, such as jet, approximate to coal.'

E. Cologne earth, earthy and pulverulent mass. The thickness said to be 50 feet.

F. Basaltic coal. Of variable structure; some parts like wood, others like coal.

Lignite occurs in beds of considerable thickness and extent, and supplies to particular districts a bad substitute for coal. It is often accompanied by iron pyrites (Alum Bay), lies in alternating series with arenaceous and argilaceous beds, and is sometimes covered by fresh-water limestone (Kipfach), and presents many analogies with coal; but in general lignite is most plentiful in the tertiary strata, and coal among the older rocks of the secondary series.

In the Isle of Wight (Alum Bay) lignite beds (the wood containing species of Pecopteris and the kind) are of the eocene tertiary strata; in a depression of the surface near Bovey Tracey, Devon, a more c. insoluble deposit of like nature occurs under several alternating beds of clay and gravel of considerable thickness. (De la Beche, Geol. Sur.)

These deposits are in close companion with the peat moors of high and low situations in England, and with and without buried forests, with the lignite coal of the Sussex Wealden, the coal of the Yorkshire olices derived from cquisita, and the coal of the older rocks in which coniferous wood appears to be abundant.

According to Brongniart ('Tableau des Terrains') at least three deposits of lignite of different geological ages may be distinguished in the series of tertiary strata, viz. the lignite of Steventon of Hunt, of monfou, and of Alaine (all of eocene date, according to Lyell's classification). Among the secondary strata, one deposit is noticed by Brongniart, viz. in the Isle of Aix, belonging to the lower greensand, and occurring in the vicinity of the sea, as a pyroligneous acid, and the lignite of the Sussex Wealden, the coal of the Yorkshire olices derived from cquisita, and the coal of the older rocks in which coniferous wood appears to be abundant.

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LILAC. [SYRINGA.]

LILIAECA, an important natural order of endogens, containing many of the most beautiful plants of that class of the vegetable kingdom. A large proportion, especially of those of cold countries, consists of bulbous plants, producing annually a stem which perishes after having produced its leaves and flowers; others have an annual duration with perennial roots, and a few acquire, in warm countries, a stem of very considerable size, as the dragon-tree, Dracaena Draco, of which there is an antient specimen in Teneriffe with a stem many feet in diameter.

The flowers of liliaceous plants are generally large and showy; some of them, especially in those which yield solid perfume to themselves, the frillitary, lychnis, star of Bethlehem, &c.; but when they acquire an arborescent stem, the size of the P. C. No. 649.

flowers contrasts, so that the largest trees among them have the smallest flowers. Their leaves are always quite simple and undivided; and usually have the veins of the leaves running straight from the base to the apex: but in some as Dracaenas they diverge from the midrib to the margin, as in the plantain. Among other endogens they are readily known by having a flower of 6 coloured pieces, 6 stamens with the anthers opening inwards, and a superior 3-celled ovary changing to a 3-celled fruit. The greater part are of no known use: we find however among them aloeos, yielding the valuable purgative medicine of that name; squill (squilla maritima), whose bulbs secrete a viscid substance much employed as an emetic, diuretic, and expectorant; and several plants which yield a tough and valuable fibre, such as Phormium tenax, or New Zealand hemp, Sanseveria zeylanica, or bowstring or African hemp, Yucca filamentosa, &c. What are called alliosaceous plants, such as the onion, garlic, &c., are species of this order, of which between 80 and 90 genera are known.
commerce, and passes out of the town on the north side under the name of Basse Deule, or Lower Deule. A canal called the Canche, made by the Duke of Cambridge, runs on the west side of the city, and affords a passage from the Upper to the Lower Deule for those which are too large to pass through the narrow channels in the town. The town is well laid out, and contains thirty-five parishes or other places, of which La Grande Place is the chief. The markets, especially the fish-market, are well arranged. The greater part of the streets (which amount to 200, besides lanes, alleys, &c.) are wide: Rue Royale is the longest and strongest in the town. Rue Estienne, the best furnished with shops and the most frequented. The houses are in general of three or four stories, regularly built, and with good fronts: they are chiefly of brick, but sometimes of a white stone quarried at Leseux, and used in the neighbouring parishes. There are numerous bridges over the canals, and quays on their sides. There are six parish churches, of which the finest are those of La Madeleine (Magdalen), with a handsome cupola, St. Maurice, and St. Andrew. There are also a Protestant place of worship and a Jews' synagogue. Formerly there were many religious houses. Among other public buildings, the most remarkable are the préfect's office, a handsome new building; the custom-house, formerly a Dominican monastery; the 'tirbh, putres or bourse, or exchange; the theatre, which has a handsome peristyle; and the court-room, one of the finest in France, built upon part of the site of an ancient church. The town-hall is an ill-assorted mixture of the architectural periods ages. The gate of Paris is one of the handsomest triumphal arch.

In 1831 the population of Lille was 69,073; in 1836 it was 75,005, including the population of the five suburbs of Paris, Becque, La Forêt, Pas de Calais, and St. André. The manufactures are of great importance. There were, ten years ago, 150 establishments for spinning cotton-yarn, a branch of industry which has in some degree superseded the manufacture of lace, one of the former staple articles of the town. Calicoes, printed cottons, counterpanes, table-linen, bed-ticking, fine woollen cloths, velvets, serge, camlets, and other woven fabrics, are made; also hats, faces, and hosey. There are several sugar-refining houses, a royal tobacco-office, and a very large manufacture of saltpetre and gunpowder, and manufactories for manufacture of machinery, paper, glass, soap, starch, sulphaic and nitric acid, and rape and poppy oil. There are some potteries and other carthurnere manufactories, several tan-yards, and a number of iron-works. There are a great number of oil-mills in the neighbourhood. The trade of the place is very great: several of the merchants are ship-owners, or take part in fitting out vessels from the ports of Dunkerque, Calais, and Ostend. There is one yearly fair, which lasts more than a week.

Beside the public establishments already enumerated there are several hospitals. The general hospital is a handsome regular building; the military hospital occupies the former monastery; and there old men and orphan boys is a very ancient establishment, founded by the Countess Jeanne, daughter of the emperor Baudouin or Baldwin IX. of Constantinople, in the thirteenth century. There are at least two other hospitals, besides one for foundlings, a 'mont de piété,' or loan society, lying-in-hospital, two lunatic asylums, one for males, the other for females, an asylum for poor girls, and three houses of the 'Sœurs de Charité.' There are also three houses of nuns, besides some others of a similar description. There is a considerable number, including a public library of 20,000 volumes, a cabinet of paintings, and a museum of natural history; a botanic garden, at which lectures are given, a high school, for drawing, architecture, and botany, and an academy for music. The head-quarters of the 16th military division, which includes the departments of Nord, Pas de Calais, and Somme, are at Lille.

The environs of the town are flat, but very productive. Towards the east, within the area of the city, is a most populous district, with a population in 1831 of 394,541, and in 1831 of 309,349. It is divided into 16 cantons and 131 communes.

LILLO, GEORGE, was born in 1693, and carried on the trade of a jeweller near Moorgate in London. Though educated in the strict example of the Protestant Dissenters, he produced seven dramas, three of which are printed in every collection of acting plays. He died in 1739.

In the three plays, 'George Barnwall,' 'Ardon of Ferrersh,' and 'Fatal Curiosity,' the author evidently has but one purpose in view, to exhibit the progress from some initial evil to a still greater evil; but in the case of Barnwall, the ill suppressed attachment of Arden's wife for the lover of her youth, and the impatience under poverty of the Wilmot (in 'Fatal Curiosity'), are the three beginnings of vice, all of which the author endeavors to show that are incapable of being cured by any remedy. In the other two dramas, the author has more than once given the same plot, but under different names; and in both he displays, with that strength of imagination which is peculiar to him, a power of creating with the same vividness of translation, but with the same measurements as are adopted in all for its attainment. In all there is a tempter and a tempted; the first determined in vice, the latter rather weak than intrinsically vicious: thus Barnwall is led on by Mil-
L. I. L

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parents being poor, he removed to London in 1620, where he became servant to a mantua-maker. This situation he endured for two years, when his master employed him as aることは being unable to write himself, engaged Lilly to keep his accounts, and to perform domestic offices. In 1627 his master died, whereupon Lilly married the widow, with whom he continued to reside on the property of the first owner for several years, he immediately took another wife, and thus aug- mented his fortune by 500L. In 1632 he began the study of astrology under one Evans, a clergyman who had been expelled from his curacy for practising numerous fraudulent tricks, and who, as it is said, kept his fortune by his wits, which Lilly soon acquired for casting nativities and for telling events was such, that he was applied to in 1634, to ascertain, by the use of the Mosaical or Miner's Rods, the time, place, and person who should be named as of the cloisters of Westminster Abbey. Permission having been obtained from the dean on condition that he should have his share of whatever might be found, Lilly and thirty other gentlemen entered the cloisters one night and explored the hazel rods; but after they had disinterred a few leaden coins, a violent storm arose, which so alarmed them, that they all took to their heels and ran home. In 1644 he published his first almanac, by the title of 'Merlinus Anglicus,' the English rendering of which was annexed to the use of the predictions contained in his treatise called 'The Starry Messenger,' as it being printed some years prior to the publication of the work comphied of, he re- gained his liberty. During the contest between Charles I and the parliament, Lilly was consulted by the Royalists, and advised about six months to remain silent and to make no predictions upon the propositions of the parliament, and he received 20L for his opinion. At the same time he was employed by the opposite party to furnish them with 'perfect knowledge of the chiefest concerns of France,' for which he received 50L. In cash and an annuity of 10L per annum. Most of the hieroglyphics, says Mr. Aubrey, contained in this work were stolen from old monkish manuscripts. Moor, the almanac-maker, has stolen them from him, and doubts some future almanac-maker will steal them from Moor. The character of Lilly has been faithfully drawn by Butler under the name of Sirrophel, although some authors have supposed that character to have been intended for Sir Paul Neal. By the facility with which he was enabled to impose upon the ignorance and superstition of all ranks of society, from the highest to the lowest, he succeeded in amassing considerable wealth. He was, to use the epithet of Dr. Nash, 'a time-serving rascal,' who did not hesitate to resort to any kind of deceit, and even perjury, in order to free himself from a dilemma on gratifying his love of money and renown. After the Restoration he made several applica- tions to the ministry to be employed as a prophet, in which capacity he had been so liberally patronised by the previous government, but in every instance he had the mortification of being rejected.

For a list of his published works the reader is referred to Dr. Hutton's 'Mathematical Dictionary.'

(Lygthia Brit., fol. vol. v. p. 2064; Granger's Biog. Hist.: Wood's 'A Discourse of the Geographers'; Nash's Notes to his Biog. ed. 1783.)

LILY, LILLY, or LILLY, WILLIAM, an eminent school- master, was born at Oldham in Hampshire, about 1468, and at eighteen years of age was admitted a demy of Magdalen College, Oxford, and after taking the degree of B.A., he quitted the University, and travelled towards the East, with the intent of acquiring a knowledge of the Greek language. He certainly remained five years at Athens, but it is not quite so certain, as Pits and Wood assert, that he went for three years through the provinces of Asia Minor. From Greece he proceeded to Rome and studied. On his return to England in 1509, he settled in London, set up a private grammar-school, and became the first teacher of Greek in the metropolis. His success and reputation were such, that in 1512, Dean Colet, who had just founded St. Paul's School, engaged presumably, that he should be his first master. He filled this useful and laborious employment for near twelve years, and in that time educated some youths who afterwards rose to eminence in the Church. Among them were Thomas Linacre, Sir Anthony Denny, Sir William Paget, Sir Edward North, afterwards Lord Melford, and many others. He was a profound scholar in all the ancient languages, and a man of a most benevolent and charitable disposition. His library was considerable, and he engaged in several charitable works. He died November 19, 1529, and was buried in the north churchyard of St. Paul's. His principal literary work was his 'Brevisiima Institution, seu Ratio Grammatici Cognosciendi,' 4to., London, 1513. It has probably passed through more editions than any other work of its kind, and is still commonly known as 'Lily's Grammar.'

LILYBOUM. [Sicily.]

LIMA, the capital of the republic of Peru in South America, is situated in 12° 2' 34" S. lat. and 76° 56' W. long. about six miles from the coast, on the southern shores of the Pacific. [Callao.] The road from Callao to Lima rises gradually, and the great square of the capital is 560 feet above the level of the sea. Lima is built in a spacious and fertile valley, traversed by a small river called Llima, a name which has been corrupted by the Spaniards into Lima. The river washes the northern walls of Lima, and over it there is a handsome stone bridge leading to the suburbs of St. Lazaro, and to the Alameda, or public walk. There is not yet a single street in Lima that is not in some degree originally erected to protect it against some ancient incursions of the Indians. The houses are low, and have rarely more than one floor: they are lightly built, on account of the frequent earthquakes, which have repeatedly reduced them to ruins. The streets are regular, broad, and clean. The pavement is extremely bad, consisting of large round stones, laid without the least regularity. There are no flags for foot passengers. The number of houses with glass windows towards the streets is on the increase, but they are not yet numerous. The roofs are made of corrugated iron, or cloth, or canvas, the total want of rain rendering more substantial roofs unnecessary. The city occupies a nearly triangular space, the base or longest side extending along the banks of the river. A fine street leads from the bridge to the Plaza Mayor, or great square, in the midst of which is a large fountain, with a bronze statue of Fame in its centre, and at its angles four small basins. On the north side of the square is the government palace, formerly occupied by the viceroy; it is a large, but gloomy-looking building. On the east side of the square are the cathedral and the arch- bishopopal palace; the former is a handsome building of consider- able extent. On the west side, which faces the cather- dal, is the town-hall and city prison; the south side is occupied by private houses, generally built in a good style. Lima has fifty-six churches, and before the revolutionary war there were forty-six convents of monks and nuns; but most of them have since been abolished. It is not deficient in charitable institutions for the relief of the poor, includ- ing three colleges or higher schools, a college of medicine and surgery, a university, and a botanic garden. There are also several charitable institutions, and among them sixteen hospitals for sick persons and two foundling hospitals. Great sums of silver have been coined at different times at the mint of Lima.
The population amounts to about 70,000 persons. The number of creoles is about 25,000, and they constitute the most numerous class of inhabitants. There are 15,000 free mulattos, and an equal number of slaves. The Indians and mestizos living in the city and suburbs amount to nearly 12,000. The manufactures are not numerous nor extensive. The principal manufactured articles are utensils and vessels of silver, gilded leather, and cotton-cloth; gold and silver ornaments are of excellent workmanship. Among the creole inhabitants are many rich families who owe their fortunes to the mines, and are now large landed proprietors. Though the produce of the mines has greatly fallen off, gold and silver still constitute the principal articles which are sent to foreign countries. (Utile, Vagabondia South America; Humboldt; Meyen's Reise um die Welt; Haigh, Sketches of Buenos Ayres, Chile, and Peru; Campaigns in Venezuela, &c.)

LAMARCK, (Zoologist.)

LIMACELLA. [Ligmea; Limax.]

LIMACÉNA. [Hyaleidze, vol. xi. p. 372.]

LIMACÉNA. M. de Blainville's name for his third family of Pulmonibranchia, the first order of his second subclass, Peneroplophora Mononeca. M. de Blainville thus defines the family (Genus Helix, Linn.):—

Animal very variable in form; the head provided with two pair of tentacula completely retractile into the interior, the posterior pair smallest, carrying the eyes on their extremity, and in the fan-shaped foot a very large organ; the line of siphons small and covered with a skin beset with microscopic teeth.

Shell of a variable form as the body of the animal, rarely subumbilicate, often normal, oval or globular, sometimes divided into two or three valves, and in living specimens pulpy or discoid, almost constantly without an epidermis, rarely hairy (velum), with the summit always blunt; the aperture round, semilunar, oval, or angular, but never notched.

M. de Blainville adds, as an observation, that all the animals of this family are terrestrial, and that all feed on vegetable substances.

The following are the genera comprehended under the Limacina in the 'Malacologie' of the author above quoted:

Stomatinae, comprehending also Amphibulimus of Lamarck.

Bulimus, comprehending also Bulimus of Leach.

Achatina, comprehending also the genera Ligus of Denys de Montfort, and Polyphemus of the same author.

Clausilia.

Pupa, comprehending also the genera Chondrus of Cuvier, Gibbus of Denys de Montfort, Vertigo of Muller, and Partula of De Férussac.

Testacea (Anatomia of Lamarck). Helix, comprehending the genera Caroelus. Lam.; Iberus, de Mont.; Caracolus, de Mont.; Acarus, de Mont.; Helicea, Lam.; and Zontites, de Mont.

Helicellina (Vitrine), including the genus Helicorion of de Férussac.

Testacea. Parmacella. Limacina. Limax, including the genera Arion, Fr. Phaliumque, of Rafnesque; and Eumelte, of the last-named author. And

Onchidium, including Veronemica, Blainv. (Helicæ; Linn.)

LIMAX, the Latin name for those air-breathing naked gastropodous mollusks, so injurious to the agriculturist and horticulturist, vernacularly known by the name of Slugs.

Limens employed the term Limax as a generic appellation for those slugs, placing the genus at the head of his (Vermes) Mollusca, and comprehending under it eight species, all terrestrial excepting the last, viz. L. popoliaceus, to which he assigns the European Oceana as a locality, adding that the animal is submarine, and should probably be rather referred to the genus Doris.

The following is the definition given by Limenius:—

Body oblong, pent, with a fleshly shield above and a longitudinal flat disk below. A certal lateral foramen for the genitals and excrements. Four tentacles above the mouth. (Nat. ed. 12, 1767.)

In addition to this employment of the term, Limenius used the word Limax to designate the soft parts of most of the genera of his (Vermes) Testacea, indeed of all that progress upon a flattened disk of foot, marine as well as terrestrial; for the very imperfect information of the time when he wrote did not enable him to make those distinctions which modern zoologists have pointed out, aided by more copious materials. As such attributes are excellently bestowed upon those materials. Thus we find in the 'Systema Naturae,' 'Conus. Animal Limax.—Cypraea. Animal Limax.—Bulla. Animal Limax.—Volita. Animal Limax.' The last, 'Volita spiris regulari,' with the exception of Argonauta and Nautilus, is stated to be a Limax, and the same animal is also assigned to Patella, which stands at the head of his 'Univalvia abque spiris regulari.'

Cuvier classifies the genera of the Règne Animal (1817), places the 'Limaces' (Limax, Linn.) at the head of his Pulmones Terrestres, nearly all of which he describes as having four tentacles; two or three only of very small size not having exhibited the lower pair—in ont to us las y la paire inférieure. Those among them, he adds, which have no apparent shell formed, according to Limenius, the genus Limax, which Cuvier subdivides into the groups of the Limaces, or slugs properly so called (Limax, Linn.); the Testaceles (Testacella, Helix, Linn.), and the Parmacelles (Parmacella, Cuv.). In the last edition of the 'Règne Animal' (1830), he adds under Limax the subdivisions distinguished by De Férussac, viz. Arion and Vaginulus.

In both editions he describes theLimaces propriamente dites as being placed between the Prosobranchia and the Feld compact disk, which occupies the anterior part of the body alone, and covers the pulmonary cavity only. This disk contains, he adds, in many species, a small oblong and flat organ, which, when dissevered in life, shows upon the orifice of respiration on the right side, towards the front, and the anus is pierced at its posterior border. The four tentacles are put forth and withdrawn by unrolling themselves (en se déroulant) like the fingers of gloves, and the head itself can be withdrawn in part under the disk of the mantle. The organs of generation open under the right upper tentacle. There is but one jaw (upper), in the form of a dentilated crescent, which serves them to gnaw with much dispatch the herbs and fruits to which they do so much damage. Their stomach is elongated, simple and membranous.

Lamarck ('Histoire Naturelle des Animal Animaux sans Vertèbres,' tom. vi, part ii, 1822) thus defines his Limaces:—

Branchiæ crepinge (rampanentes), under the form of a vascular net upon the wall (paroi) of a particular cavity, the aperture of which is a hole which the animal contracts or dilates at its pleasure. They require the free air only.

The zoologist remarks that the Limaces constitutes a natural family, and a very rich one, as the mammals which compose it are the only ones among the Gastropodes whose respiratory organ, which is truly branchial, breathes nothing but free air, and is hence named the Respirantia. These mollusks, however, are continued, are naked or nearly entirely naked. Their body is elongated, creeping upon a ventral disk which is not separated from it, and bordered on the sides by a mantle which is most frequently very narrow. Originally from the water (originaires des eaux), they live habitually in their near neighbourhood; but some inhabit, nevertheless, places which are at a distance from the water, but nearly always in cool and humid localities. They have accustomed themselves (ils sont acoutumés) to breathe air with their branchies; so that this habit has become a necessity to them. For it is, for the first time, as regards the mollusks, that the free air is the fluid breathed. This fluid penetrates by a hole, and without either trachea or branchies into a particular cavity which is not divided into many partitions (loges) or cellules, but on the walls of which little lace-like vessels or a vascular net-work (des cordonnets ou des lacs de vaisseaux) creep in divers forms and receive the influence of the respiration. A similar or analogous cavity is found in a great number of pulmones, but in those which breathe this influence, the fluid, being very superior to that of water, requires in the organ presented to it only a very small surface. Thus the vascular lace-like work (cordonneus) received over the floor of the cavity, and

* Here Lamarck's system of progressive development, and the civilisation that he had upon his views appears. See his Lettres, &c., p. 280. He at that time had placed the terrestrial animals to the 'Originales des râts,' and would have them proceed from this low and degenerate stage to the Perfectes, by passing from the marine to the terrestrial, and so on. The breathing, the habit has become a necessity, and they so become terrestrial.
which in that respect resembles the same parts in the Limacians, project very little; whilst in those which respirate with the external air, as the terrestrial pulmonate mollusks, the lung, which is a respiratory organ of a particular fashion, adapted to organizations of a superior order, an organ which is essentially cellular, and into which the fluid respired is introduced at least by an internal tract, and often by an external orifice, the lungs of the respiratory organ have peculiar characters which branchiae or gills, whatever be their form and situation, never offer. If, in order to determine the name or the kind (espèce) of a mollusk, the organ or organs of the passage to the fluid respired, then all animals which respire free air may be said to possess a lung; but if, in order to facilitate the study of the different modifications of organs which serve for respiration, and in order to seize the means which nature has employed to effect the progressive composition of the animal organization as well as its perfection, one considers the characters proper to each sort of respiratory organ, it will be then evident that no mollusk nor any other invertebrate animal respires by a lung, although they respire the free air. Besides, independently of the particular and well-known structure of every lung, the air never penetrates except by the mouth of the animal, whilst in every respiratory organ distinct from the lung, the most important element of the passage to the fluid respired, is introduced by another passage. To confound objects so different, each of which is appropriated to the degree of organization to which it belongs, and can only exist in an organization of that degree, is, in our opinion, to render the knowledge of the order of nature in their productions impossible. In fact, in the course of the animal kingdom, such a function could not be executed except by an organ or system of organs differently modified, because it must be in connection with the state of organization of which it forms a part.

To return, continues Lamarck, to the particular objection before us, I will say that branchiae, although they present themselves under a multitude of forms and different situations, never resemble, notwithstanding, a lung. This respiratory organ, then, is peculiar; and we know that it has the power of habituating itself to respire air. In fact many crustaceans which live nearly constantly on land respire there this last fluid only with their branchiae. If the Cylindrifera, as well as the Limacina, have a branchial cavity similar to that of the Limacians, and breathe the free air only, this cavity is also the same as that of the Melaniidae and other Trachelipods which breathe water only. But in the Limacines the lung is greater than the branchial surface only to the fluid respired; whilst in the second the organ in question offers a much larger extent of surface. In each case these organs are always branchial, but adapted to the power of the influence of the fluid respired, and situated in the mantle cavity.

Thus far Lamarck, who concludes by comprehending under his Limacina the following five genera: Onchidium, Pteropoda, Limax, Testacella, and Virina.

The second section of the Mollusca of M. de Blainville, or those which have the anterior border of the foot, or the edge of the mantle cavity, extending into a species of buckle, the shell being null or merely membranous, consist of the genera Virina or Helicara, Testacella, Pteropoda, Limacina, Limax, and Peronemia, the terrestrial Limacines. Of these, the first family is the Limacinae, to which M. de Blainville has given the name of Peronemia, which occasions a sad confusion in nomenclature. It will suffice, then, to add the genus Vaginulus to the family of Limacinae of Lamarck, to render it as complete as the most positive observations require.

Mr. Gray, as we have seen in the article Helicidae, is of opinion that, at present, only a few genera, as Arion and Helicarion, Fér., Natica, Gray, and Stenopod, Guid, can be referred with certainty to the Arionidae, though he thinks it very probable that, when the animals of other shells are known, many of them may be found to belong to that family. In this state of our information we shall confine ourselves in this article to those forms of the naked truly operculate shells which are, for the present, the only ones known under the name of Stagnas, and shall notice the genera with external shells under their respective titles, though we quite agree in the principle of the general similarity of the zoological characters of the Limacines and Helicidae, and the almost imperceptible gradation of form among them.

Vaginulus. (Férussac.)

Animal oblong, elongated, often very slender in its state of extension, convex above; a cærus covering the whole of the body, externally of the same color, but usually marked with a dorsal line of dark brown, wherein the head can be withdrawn; mouth armed with an upper jaw; four contractile tentacles, the two upper ones long and seoliformis, the anterior short and, as it were, palmed or bifurcated at their extremity; the posterior, the respiratory cavity towards the middle of the body having its orifice behind, at the extremity of a long canal, and separated from the anus by a mem-
brane only; organs of generation very distinct on the right, the male organ being near the small tentacle, and the orifice for the eggs towards the middle; no terminal mucous pore.

Shell null, there being neither rudimentary internal shell nor calcareous concretion. (Rang.)

Example.—Vaginulus Tannasi (Onchidium love, Blainv.);

Geographical Distribution of the Genus.—East and West Indies. M. Rang, who remarks that they have been said to be both terrestrial and fresh-water, states that he never met with them in Bourbon and Martinique, except in the woods and gardens under old fallen trunks.

There is great confusion about the nomenclature of Onchidium, Peronia, Veroniceella, and Vaginulus. Cuvier observes that Vaginulus is different from Onchidium, with which M. de Blainville has united it, at the same time that he has detached the true Onchidia, to form his genus Peronia. It appears in fact, as M. Deshayes observes, that M. de Blainville has made of the marine Onchidia of Cuvier his (De Blainville's) genus Peronia, which he places in his family Cyclonebrachiata near Doris, and that he collects the fresh-water species under the genus Vaginulus, to which he unites his genus Veroniceella, which last he has himself rejected.

Limacella. (De Blainville.)

We give a figure and description of this genus, premising that M. de Blainville himself, who separated it, says, that the combination of characters appears to him so anomalous that he doubts really whether he had well observed the mollusk on which he has established the genus. M. Rang however gives it a place in the family, merely copying the description and M. de Blainville's expressions of doubt above stated.

Generic Character.—Animal elongated, subcylindrical, provided with a foot as long and as large as itself, from which it is separated only by a funnel; enveloped in a thick skin, forming at the anterior part of the back a sort of buckler for the protection of the pulmonary cavity, the orifice of which is at its right border; the orifices of the generative apparatus distant, that of the oviduct at the posterior part of the right side, and communicating with a funnel by the termination of the male organ, situated at the root of the right tentacle.

Example, Limacella Effortiana.

Linax.

Animal oblong, more or less elongated, demicylindrical, furnished with a cuirass at the anterior part; head sufficiently distinct, retractile under the cuirass, carrying two pairs of tentacles equally retractile, terminated in a raised (bouquet), the upper pair long and oblong, the lower pair short; foot great and oblong, the pulmonary cavity situated under the cuirass, and opening under its right border; orifice of the anus at the posterior border of that of the respiratory cavity; organs of generation united and showing themselves at the right side anteriorly, near the great tentacle; sometimes a terminal mucous pore.

Shell.—A rudimentary internal shell, or calcareous concretions in the thickness of the cuirass. Such is the general definition of Linax by M. Rang.

He observes that M. de Féruissac seized on certain anomalies in the characters of these mollusks, which led the latter to separate a certain number, out of which he forms his genus Arion. M. Rang observes that this distinction has not been adopted by M. de Blainville, excepting for the establishment of two sections; but M. Rang thinks it better to form the whole into two subgenera, viz. Arion, Fér., and Linax, the latter consisting of the species properly so called.

M. de Blainville divides the genus Linax into four sections: the 1st consisting of those species in which the pulmonary orifice is very anterior, the tail carinated, and the rudiment of the shell most evident. This section consists of the Grey Slugs; and Linax griseus is given as an example.

The 2nd section consists of species whose pulmonary orifice is more posterior; the tail not carinated, hollowed at its extremity into a blind sinus, and the rudiment of the shell granulous. This section consists of the Red Slugs (genus Arion, De Fér.). The example given is Linax ruber.

The 3rd section consists of species whose buckler is not distinct, and which have the ocular tentacles club-shaped, and the others lateral and oblong (genus Philomorphae of Ranae). The example given is Linax Oxytura.

The 4th section comprehends those species whose buckler is not distinct, and which have the two pairs of tentacles cylindrical, nearly on the same line, the smaller ones being between the greater (genus Eumelus, Rafine), the example given is Linax nebulosus.

The two last sections are not noticed by M. Rang; and Cuvier is of opinion that the two genera recorded by M. Ranae are too imperfectly indicated to be admitted into his (M. Cuvier's) work. M. Rang also declines to admit them till there is more information on the subject.

Subgenus Arion.

Respiratory orifice situated comparatively forward, towards the anterior part of the buckler, which is rough (chagrinée) and contains small calcareous concretions. There is a terminal mucous pore.

Example, Arion ruber, Fér. Linax ruber, Linn. This species is sometimes nearly quite black.

Subgenus Linax.

Respiratory orifice situated comparatively backwards; the buckler is marked with fine and concentric strips, containing a tentaculose rudiment which is sold but without any voluntary impression. There is no terminal mucous pore. Example Linax antiquorum, Fér., Linax maximus, Linn., Grey Slug.

Geographical Distribution of the Genus very wide; but the northern and temperate countries of both continents seem to be plagued with a greater number than those of the torrid zone. They are found in Africa, and have been noticed at each extremity of that quarter of the globe. MM. Quoy and Gaimard describe some from New Holland, and M. Rang saw them in India and in the Isle of France.

Utility to Man.—The species of this genus can hardly be of any direct utility to man, with the exception of the supposed virtues of a decoction or ‘bouillon of Red Slugs’ in disorders of the chest, whilst the injury which they inflict on the garden and the field is most devastating, notwithstanding the number of birds which prey upon them. Gardeners are constantly racking their invention to free themselves from these devouring hosts. Quicklime, soot, fine coal ashes, and sawdust have been used as defences for young
and tender plants. The virtue of the first is soon exhausted, and the slugs do not care much for the second after awhile, but they will be plentifully and frequently renewed if kept open to the incursion. Cold or not too, and saw-dust annoy them by sticking to their foot and impeding them. A stout, coarse, horsehair line, such as is used for hanging clothes out to dry, coiled round the stem of a vial will, on being tied, form a net which will operate as a protection to the fruit from both snails and slugs, in consequence of the briestly surface presented to them, and which they shrink from encountering. Care must of course be taken that they do not get under it. Watering the roots of plants, and particularly of water-plant, is said to have a good effect, for it penetrates about the roots of the plants and into the earth, where they lie hid. Thin slices of any vegetable of which they are more fond than of the plant to be protected will allure them, and they may be thus killed by scores early in the morning by dividing them suddenly with a sharp instrument. The dead bodies should be left on the spot as a bait, for we have seen the living slugs preying upon the exposed bowels of the dead ones, most probably attracted by the half digested vegetable matter. Ducks destroy great numbers of these pests, whilst they improve themselves, but they are apt to trample down a young and delicate crop of vegetables.

M. Deshayes, in the last edition of his work (tom. vii. 1836), remarks that the great genus of the Limaces, the *Helices*, is not so easy to study as might be supposed; the colour of the species is easily modified, and everything leads to the belief that they have been multiplied by those authors who have attempted to give importance to their observations. Deshayes presumes that the European species are less numerous than some naturalists suppose. In passing from the north to the south, the *Limaces* undergo modifications similar to those undergone by other mollusks; and when we have under our eyes a series of modifications impressed upon a species which has lived under different circumstances with regard to temperature, and when we remark that these modifications are capable of being reduced to constant laws, we wish to come to the conclusion that they have been allied with so much power on certain races, have had an equal effect on others; and we may foresee, by an induction not at all forced, the future results of observation on this subject. If we see, in fact, species of *Helices* modified, we may believe that similar modifications have taken place in the *Limaces*. These modifications are doubtless less easily recognized in the last-mentioned genus; for there is no solid shell by means of which they may be inferred. M. Deshayes, in his anatomical memoir on the *Helices* and *Limaces*, has demonstrated all the analogy which exists between these two genera. Thus those zoologists whose habits of observation enable them to discover the ordinary march of nature might expect to see filled up the considerable interval, in reference to the shell, which would seem to exist between these two genera. The marine mollusks have already offered, if not in the same family, at least in the same group, a phenomenon sufficiently similar to that which is exhibited among the *Limaces* and *Helices*. In many of the *Limaces* we find no trace of a shell; in others, some calcareous grains are observed in a sea included in the thickness of the buckler, placed above the heart and branchia. These grains aggluti- nation constitute in a considerable number of species a flat calcareous plate, entirely internal; soon we find this plate coming out and showing some of its parts externally, while the remainder is still adhered in the thickness of the mantle, but its free extremity begins to be twisted spirally. This sub-internal shell, quite incapable of containing the least part of the animal, increases gradually, changes its place when the organ of respiration changes its situation, and is modified by posited in a very insensible degree of development sufficiently considerable to contain the entire animal, as in certain *Vitrina* and in all the *Helices*. Of the different degrees which exist between these two extremes of the so-called modifications, zoologists have made so many genera. M. Deshayes concludes his interesting observations by remarking that the history of the Limaces is, at the present day, become very considerable, and he finds it impossible to exhibit a complete view of it; for even the greatest brevity would lead him to overstep the limits which he necessarily imposed on himself in editing the work from which we have quoted. He refers the reader particularly to the memoirs of Cuvier for the anatomical part, and to the great work of De Férussac for the history of the genus, the distinction of the species, and the discussion of their characters.

The reader will find parts of the organization of some of the *Limaces*, and a notice of the preparations in the Royal College of Surgeons illustrating them, mentioned in the article Helicea, vol. xii., pp. 104, 105.

Since the publication of that article, the 4th volume of the 'Catalogue of the Museum of the Royal College of Surgeons' has appeared. Numbers 2297 to 2302 (Gallery), both inclusive, exhibit the generative system of the Slugs. Numbers 2303 to 2311, both inclusive, illustrate the same system in the Snails ('Helice'). No. 2315 is a specimen of the *speculum amoris* or caruncular dart of a *Snail*; and Numbers 2346 to 2349, both inclusive, are illustrative of the coitus in *Helix aspera*.

**Pamarella.**

Animal elongated, oblong, demi-cylindrical, covered on the middle of the back by a round, oblong, fleshy cuirasse, which is a great extent free in front; head sufficiently rounded, carrying two pairs of retractile tentacles, the one superior, long and ocelliferous, the other anterior and short; foot large and oblong; respiratory cavity under the posterior part of the cuirasse, opening, as well as the anus, by a common pocket of continuity under its right border, a little backward; orifice of generation single, near the right tentacle.

*Shell* flattened, calcareous, with a membranous epidermis, oval, slightly bent in the direction of its width, with a summit marked by deep sinuses on the right side postero- riorly, placed in the thickness of the cuirasse, above the respiratory cavity. Cuvier remarks that the shell exhibits a slight commencement of a spine.

M. de Blainville gives the dimensions of the shell in two sections: the 1st, consisting of species whose tail is not carinated, and whose shell is subsulcal (Example, *P. Tauamii* and *P. Politium, Fér*); the 2nd of species which are more depressed, the tail carinated and the shell sutiform (Example, *P. Olivieri*).

**Geographical Distribution of the Genus.**—M. de Blain- ville (Malacologie) observes that only two species are known, one from South America, the other from Peru. Cuvier, in his 'Régne Animal,' notices the species first known, *Pamarella amoris*; and says that there is another from Brazil (*P. Politium, Fér*), and some others from the Indies, meaning probably the East Indies. M. Rang, who remarks that the *Pamarella* form a very natural genus, very closely approaching to the slugs, states that in Brazil they inhabit the woods, but that at Bourbon and Madagascar he never found them except on rocks near fresh-water torrents. He adds that Olivier brought the first specimen from Mesopotamia, and that it was this which served for the anatomical researches of Cuvier, under the name of *P. Olivieri*; that M. de Férussac has described another under the name of *P. Politium*; and that he (M. Rang) brought back from his voyage in the Indian Seas two others, one of which, *P. Rauguus*, has been described by M. de Férus- sac as an *Artus* ('Bull. des Sciences,' February, 1827); this was from the Isle of Bourbon and Madagascar.

Example, *Pamarella Olivieri.*

Locality, Mesopotamia.

M. Deshayes (2nd ed. Lam., tome vii., 1836) does not add to the single species given by Lamarck, viz. *P. Olivieri,* • *Mesopotamia.*
Cur P. Marcellinus Oken; but that he states that an animal coming from Brazil had been sent to M. de Férussac, and anatomized by M. de Blainville; and had been assigned by those authors to the genus *Parrucella*. This animal, according to M. Deshayes, offers nevertheless remarkable differences in the disposition of the organs of generation; but the main characters, and especially that from Brazil, and in their synoptic Prodrömus ("Ann. des Sci. Nat., March, 1833") they have proposed to establish for it a genus under the name of *Crystella*. But M. Deshayes states that he waits for the description and figure before making any addition to his admirable work.

LIM. (Astronomy.) The edge of a planet is called its limb; also the edge of any circle which forms part of an astronomical instrument.

LIMILITE, a mineral so called by Saussure, which occurs in the volcanic hill of Limburg. It is found in irregular grains. Structure compact. Hardness 6 to 7. Scratches easily class. Colour honey-yellow. Melts into a black mass.

LIMBORCH, PHILIP VAN, was born at Amsterdam, the 19th of June, 1633, and was educated at the University of Utrecht. He was one of the most distinguished of the Remonstrant or Arminian theologians, whose tenets were condemned by the Synod of Dort in 1618. [Dowk, Sympoloeum, 1658.] In 1657 he became pastor of the Arminian or Remonstrant church in Gouda; and in 1668 of another church of the same persuasion in Amsterdam. He was also professor of theology in the same place, in the college of the Remonstrants. He died the 29th of April, 1712.

Limborch was a man of considerable learning; and his connection with the Arminian party, which suffered considerable persecution at that time from the Dutch government, probably led him to espouse those principles of religious liberty which distinguish most of his writings. He was in intimate terms with Locke; and carried on an extensive correspondence with him for many years. Several of his letters are printed in the third volume of Locke's Works.

The most important of Limborch's works are: *Præstantium ac Eruditorum Virorum Epistolæ*, Amst., 1660, 1664, 1704; this volume contains the letters of Arminius and the most eminent of his followers on the distinguishing tenets of their system. *Theologia Christiana*, 1666; "De Veritate Religionis Christiana, annua Collatio cum erudito Judæo," 1687; "Historia Inquisitionis," 1692; "Commentarius in Acta Apostolorum et in Epistolæ ad Romanos et Hebraeos," 1680. He also edited many works of the principal Arminian theologians.

LIMBURG (Limburg) was a province of the kingdom of the Netherlands, as constituted after the overthrow of Napoleon. It consisted of the city of Maastricht and the county of Broehoon, a part of the Dutch portion of the duchy of Limburg, the Dutch portion of the upper quarter of Gelderland, a part of the bishopric of Liege, Austrian Gelderland, parishes of Brabant, Graaf en Juliers, the little counties of Gronsfeld and Rhenland, and the lordships of Witten, Eys, and Scheltenaken, which formerly belonged to the circle of Westphalia in Germany. This province is situated between 50° 44' and 51° 43' N. lat., and 4° 57' and 5° 49' E. long. bounded on the north by the bishopric of Liege, and on the east by the Prussian provinces of the Rhine, on the south by Liege, and on the west by South Brabant and Antwerp. The figure of the province grows gradually narrower from south to north till it ends in a point about two miles and a half broad; the area is about 1400 square miles, and the population (in 1838) nearly 383,000. The surface of the country is generally level, being diversified only in the south-east part by some slight elevated lands. The principal river is the principal river. In the adjoining province of Liege, the banks of the Maas are lofty and precipitous; but in the province of Limburg there are elevations only at a distance from the stream as far as Maastricht, from which place the banks of the Meuse become gradually lower and broader; its water is very fertile, being covered with a rich black mould. In general the south-western part of the province, especially in the district of Maastricht, has a fertile soil, even where it consists of clay or sand; but the north-west part of this district contains extensive heaths. Of the two other districts, Hasselt and Roermont, the only fertile portions are, in the first, the southern part between the rivers Jaar and Demer (the former belonging to the basin of the Maas, the latter to that of the Schelde), and in the second, the part along the Maas; the remaining and larger portion of these districts is a woody tract of ground, which appears suitable for the establishment of a genus. Since then, he adds, MM. Webb and Berthelot, who have explored the Canaries with such scrupulous attention, have observed there a mollusk resembling the Paraparrucella, and especially that from Brazil, and in their synoptic Prodrömus ("Ann. des Sci. Nat., March, 1833") they have proposed to establish for it a genus under the name of *Crystella*. But M. Deshayes states that he waits for the description and figure before making any addition to his admirable work.

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ASTRIGENTS. Lime-water is often the most effectual means in conjunctive application with a strong solution of salicylate of soda in removing the tendency to the generation of worms. [ANTHELMINTICS.] Lime-water with olive oil is a useful application to burns. Chloride of lime appears to exercise a specific power over the fungous-grounding or soil-clogging properties of the soil, so that under its influence various swellings and indurations have first softened and then disappeared. This is the more remarkable as bronchocele, or enlargement of the thyroid gland, seems to be caused chiefly by drinking water abundant in calcareous salts. Chloride of lime has been strongly recommended in serefolia. It is generally given in the form of solution, but in a dry state, with extract of comfit, it is even more useful.

The sparing use of lime to absorb humidity from the air renders it of much utility in preserving steel and surgical instruments from rust. Hence the presence of a portion of it in chests sent to sea protects the fine edge from erosion. For the use of the chloride (hypochlorite) of lime as a disinfecting agent see ANTISEPTICS and CHLORINE.

Phosphate of lime has been recommended in rickets and other diseases of the bones in which this earth is deficient. Its utility is increased by using at the same time phosphate of lime with the addition of a small portion of the rust of iron. This salt and many other salts of lime exist in different mineral waters, and some of their effects are due to this impregnation. [MINERAL WATERS.]

LIME TREES. [Tilia]

LIMERICK, an inland county of the province of Munster, in Ireland, bounded on the north, except at the city of Limerick, by the river Shannon, which separates it from the county of Clare, on the east by the county of Tipperary, on the south by the county of Cork, and on the west by the county of Kerry. According to the map of Ireland published under the superintendence of the Society for the Diffusion of Useful Knowledge, it is situated between lat. 52° 25' and 52° 50' N., and long. 8° 42' and 9° 8' W. of the Greenwich meridian. It extends from O'Brien's Bridge on the north, to the Cork boundary at Knockea on the south, 33 statute miles, and from Abbeyfeale on the west, to the Tipperary boundary at Cashel, on the east, 54 miles. The area, according to the same map, is 478,580 statute acres, or 749 statute square miles, inclusive of the county of the city of Limerick. It is elsewhere estimated at 649,621 acres, of which 545,648 are cultivated, and 91,973 are unimproved heath and moor land. The whole extent of which have been measured more accurate in the relative proportion of arable and waste than in their united absolute extent. In 1831 the gross population was 248,901.

The general character of the surface of Limerick is that of undulating undulating plain, sloping with a gentle declivity towards the Shannon on the north, and surrounded, on its southern and western borders by a well defined margin of mountain groups and hilly uplands. A mountainous tract occurs also in the north-eastern extremity of the county, between which and the mountains on the south the plain spreads eastward into Tipperary. The group on the north-east constitutes the southern extremity of that extensive chain which, commencing at Keepend mountains and its subordinate range in Tipperary and Limerick, runs northward to the King's County, where it terminates in the range of Slieve Bloom. The names of the Slieve Phelim and Bilboa mountains are applied to those subordinate portions of the Keepend group which lie west and east of the lines of the River Shannon and Tipperary respectively, and it is by the declivities of these united ranges that the level district uniting those counties is limited on the north. The general direction of the Slieve Phelim hills is from north-west to south-east, as last described by the streams descending from them. These streams, falling into the Bilboa river, which runs westward along the foot of the mountains of that name out of Tipperary, form the Mulkern river. The Mulkern, increased by the Newpoor river, which runs directly from Keepend, carries a good body of water to the Shannon, which it enters a little above the city of Limerick. The country between the western declivities of the Slieve Phelim hills and the Shannon is, towards the extremity of the county, flat and boggy, but has a pleasingly diversified surface along the banks of the Mul- kern. The villages of Cappamore, Abington, and Annacotty are situated on this river. About midway between the bores of Mulkern and O'Brien's Bridge, is Castle Adare, an old city, the seat of the bishops of Limerick, a small town, surrounded by delightful scenery. It is built on the eastern side of the Shannon, which, flowing between well-timbered banks, chiefly occupied by demesnes and demesne parks of considerable extent, presents a curious and a species of town dignified by the name of the castle, common grandeur, the principal of which is known as the Leap of Doonass. The valley of the Shannon is here contracted by the Slieve Baughtha mountains on the one side, and the range of Keeper on the other, and presents features of a highly diversified and striking character throughout a distance of several miles.

The principal features of the great plain of Limerick, extending from the Mulkern westward and southward to the north end of the county and the borders of Kerry and Cork, are the rivers Maigue and Deel, the former forming a series of three-quarters of a mile, parallel courses. The basin of the Maigue embraces the entire eastern and south-eastern division of the county. This river has its source in the high land stretching southward to Charleville, in the county of Cork, from whence it runs a little west of north to the Shannon, and pretty nearly bisects the central plain of Limerick. Its chief feeders have their sources among the mountains which occupy the south-eastern division of the county. This consist of a continuous range of hills and mountains, called the Castle Oliver mountains, rising at a short distance from its western extremity. The Looba, formed by the streams descending from the northern and north-western declivities of the county, runs westward from Killimane to the decayed town of Kilmaineock through a rich grazing country, and joins the Maigue near its source. The Star river, rising near Galbally, in the interval between the Gaultee and Castle-Oliver mountains, traverses a similar vale of deep pasture and village lands, and runs westward from Midlouse to the decayed town of Kilmaineock through a rich grazing country, and joins the Maigue about five miles from its junction with the Looba. The Campogue, the most considerable stream of the three, rises on the borders of Tipperary in the open country skirting the northern declivities, and runs nearly parallel to the Star, at an average distance of about five miles, by Hospital and Six-mile-Bridge, to a mile above Croom, where it meets the Maigue, which, five miles below the point, becomes navigable at Adare. From Adare to the Shannon is a distance of twelve miles of navigable river. The only striking feature of the plain watered by the above tributaries of the Maigue is Loch Gur, a picturesque sheet of water three-quarters of a mile in length, embosomed among romantic knolls, and surrounded by considerable body of water, with a gentle runway between Six-mile-Bridge and Bruff. A cave and the ruins of a strong fortress on an island in the lake add to the interest of the scene. From the summit of Knockfennel, one of the hills forming the northern margin of the lake, a magnificent view is obtained of the surrounding plain, comprising the greatest extent of arable land unencumbered with bog in Ireland, bounded by an imposing amphitheatre of distant mountains. The country north of the Campogue, between it and the Mulkern and Shannon, have a more varied surface than that above described. The conical hills of Kiltyeely and Knockdirc, Pallis Hill, and the hill of Knockkra, rise within a short distance of one another on the Tipperary border, about midway between the more marked mountain boundaries which limit the plain on the north and south. Several minor heights rise throughout the plain immediately south of the liberties of Limerick, which lie along the Shannon. The small town of Palisgreen is situated on the Tipperary side of this line of height, and Patrick's-well, towards the Maigue, on the road from the city of Limerick to Adare.

The county west of the Maigue for about two-thirds of its extent has much the same character of surface as the districts being included in the mountainous region stretching westward into Kerry. It is watered by the Deel, a river of nearly equal size with the Maigue, and also navigable for three miles above the Shannon, into which it falls below Adare. The junction of the courses both of the Deel and Maigue is through so flat a country that their respective valleys are scarcely observable, but in the district intervening between their sources there is a good deal of high ground, particularly about the small town of Bealgarvey, in the neighbourhood of which are the steep hills of Knockbohna and Killameedy; the former of which has an elevation of 967 feet.
The valley of the upper Deel lies between these heights on the east, and the high country towards Kerry on the west, which latter rises round this margin of the level district and forms a series of escarpments. But the Deel stands out as a low flat bed of alluvial soil, from Drumcliffagh, at the head of the river, to Shana-golden and the Shannon. The town of Newcastle is situated on the south-western border of the plain between the river and the road from Adare to Newcastle, which latter is formed by the Deel's bend and lower down upon the Deel, on the road from Adare to Newcastle, is Rathkeale, the most considerable place, next to the city of Limerick, in the county. At the northern extremity of the mountain-range the detached hill of Knockpatrick rises boldly between the town of Shannon and that of Limerick. The Shannon, looking westward from the surface is rough and lily, rising at the distance of two or three miles from the Shannon into sterile tracts of bog and mountain, which spread southward and westward into the counties of Cork and Kerry, forming almost a series of 900 square miles. The village of Glin is situated on the shore of the Shannon under the northern termination of these highlands, in the north-western extremity of the county. The mountains which rise in a continuous ridge towards the valley of the Deel are backed by other groups running east and west, and the valleys formed by which are traversed by various streams, which join the Geale and Feale rivers, running westward into Kerry. On the Feale, at its junction with the Ushane, which is formed of these two rivers, is situated the county town of Abbeyfeale, in the extreme south-west of the county, and nearly in the centre of the mountainous region above mentioned. Although the Shannon does not lose the character of a river until after passing beyond the bounds of this county, yet for all the purposes of commerce it is equivalent to an equal length of sea-coast from Glin to Limerick, a distance, including the windings of the river, of about 53 miles. With the exception of a few points, which may be improved at a small expense, the navigable channels of this part of the river are capable of admitting vessels of heavy burthen as far as the pool of Limerick, situated about two miles below the city. At present there is a great deficiency of beams, but as the river is navigable for more than 100 miles there are no suitable ports or landing-places along the shore. Several such works are however contemplated by the present commission for the improvement of the Shannon, including piers at Glin and Kilkeery, of an estimated cost of £575l. and £134l. respectively, and quays at Foynes and Askeaton, the estimated cost of the latter being 90l. It is also proposed to widen and deepen the channel of the Maigue, as well as the old branch canal and bas-in connecting the town of Adare with the lower waters of the Shannon. A view of the Shannon, looking eastward, exhibiting the nature of the present navigation for vessels of considerable draught, of 12 miles from the Shannon. [SHANNON.]

The leading lines of road diverging from Limerick to Charleville, Cork, and Tralee are carried nearly in straight lines through the open country. The two latter lines pass through the principal places in the county, the Cork road running by Bruff and Killallock, and that to Tralee by Patrick's well, Adare, Rathkeale, Newcastle, and Abbeyfeale. A new road by Croom to Charleville, and thence to Cork, is in progress. The opening of several new roads by government in 1829, through the mountainous district surrounding Abbeyfeale, has had the best effect in promoting peaceful and industrious habits among the population of that portion of the counties of Limerick, Cork, and Kerry.

A line of railroad from Dublin through Limerick, along the southern bank of the Shannon, to Tarbert in Kerry, has been recommended by the commissioners appointed to consider and recommend a general system of railways for Ireland. The climate is remarkably good, and the least variable of that of any of the western counties of Ireland. Instances of longevity are numerous and respectable.

Geology.—The level part of the county consists of the carboniferous limestone of the central plain of Ireland. The mountain groups and detached eminences of its eastern and southern slopes are formed by the protrusion of older and higher strata that underlie the volcanic rocks and lava in a superposed series superimposed. The Sliever Phelim and Bilboa groups, in common with the extensive range of which they form a part, consist of a nucleus of clay-slate supporting flanks of yellow sandstone and conglomerate disposed in conformable beds. Towards the south-western extremity of the Sliever Phelim group the yellow sandstone disappears and the clay-slate is bordered by a tract of old red sandstone. Old red sandstone and yellow sandstone combined form the western escarpment of the county, on which the country is divided into a series of deeply dissected ridges. The eastern portion of the county is occupied by the limestone, and the great limestone basins of Loughs Kilkee and Foynes are characteristic features of the county. The southern tract of the county, however, is more mountainous, and is divided into a series of ridges and valleys, the latter being formed by the beds of the ancient rivers, which are all of course now in the valley of the Shannon. The valleys of the Maigue and Deel rivers, except in Knockkemnagh hill, where a mass of conglomerate, firmly cemented, occupies the higher parts, resemble the general nucleus. Trap protrusions occur in twelve distinct localities in the eastern part of the county, between the embouchure of the Maigue and the border of Tipperary. The chief of these is the district of Pallis, Kilkeery, and Knockdill. The interstratification of the jetose limestone and trap rocks is here well marked, both on the large and on the small scale, the open country exhibiting numerous parallel ridges of low elevation, caused by the successive outcrops of massive limestone beds alternation with each other, and the escarpments of the hills exposing the subordinate divisions that rise from the interposition of thinner strata of limestone in the igneous rock. The general structure of these great outcrops is regularly stratified, and in the upper tracts the igneous rock is found in the middle part of the district, particularly in the case of Pallis hill, which is, like Crog- han, remarkable for the great fertility of its soil. Pallis hill is further distinguished by the presence of columnar joints, which renders it a remarkable nucleus of this district. The mountainous tract of the county is of great extent in the contiguous districts of the county. The whole elevation of the country is above 100 feet, and the soil is generally the most extensive in the British islands. The soil consists, as usual, of the Killynaule district. [KILKENNY.] Six distinct beds have been observed, but the clay is usually of a slaty structure, and much softer than that of Tipperary or Kilkenny: it is chiefly used for burning lime. Owing to the undulating character of the surface and the consequent magnitude of the angle (usually from 60° to 70°) which the beds make with the horizon, the mining operations are limited, and the formation of colluvial and gemmy limestone, as for veins, is to be found in this part of the county. The only workings in Limerick have been at Newcastle and Loughill, in the north-western extremity of the county, where the shales and sandstone repose immediately above the great Mullagh coal measure of the county. The latter is the surface-rock throughout the country and is flanked by the limestone, between the Shannon and the bolder activities of the highland country. About seven miles from the city of Limerick, near the Asketon road, is a quarry producing a fine marble-coloured marble, which can be raised in blocks of any size, and to an unlimited extent; and in the more immediate vicinity of the city black marble, but of an inferior quality, is got in abundance, and generally used as a building-stone.

Iron, copper, and lead ores are found in various localities throughout the district occupied by the trap protrusions, but no veins are at present worked.

Soil and Agriculture.—A tract of extraordinary fertility, called the Coal Valley, trending westward out of the county of Tipperary, occupies the western part of the plain of Limerick. It extends from the sources of the Maigue to the Mulkern, and has an area of about 160,000 statute acres. The soil is a rich, silty, crumbling loam, and is equally suitable to grazing or tillage or the raising of pasture. One acre is considered sufficient to fatten the largest bullock and a sheep. A still richer soil is that of the "Coresasses," which extend for fifteen miles along the southern bank of the Shannon, from a little below Limerick to Tarbert, where it is marked by its extreme fertility and character to that of the opposite side of the river [CLARE]. Having a soil of yellow or blue clay, covered with a deep rich black mould. They yield the greatest wheat crops raised in Ireland; and their produce of potatoes sometimes amounts to one hundred barrels of twenty-two stone each.
to the Irish acre. The soil of the remainder of the limestone plain is light and sweet, very good for tillage, and yielding an excellent pasture for dairy cattle and sheep. Not more than one-fourth of the level district is however under tillage. Public and dairy farming are the staple occupations of the people. The stock-farmers are comparatively a wealthy class, and frequently have stocks of from 400 to 600 head of cattle; they usually purchase at Ballinasloe, and sell at the fairs throughout the county, which are regularly attended by large and thrifty parties. Limerick city has latterly been inconsiderable. Great quantities of butter are made throughout the county. Limerick is the chief point of exportation, but considerable quantities find their way to Cork from the extreme south and south-west. The butter of Limerick ranks above that of Cork in the London market, but does not in general bring so high a price as the butters of Belfast and Carlown. The making of cheese is not attended to. Pigs of a very superior description are bred in great numbers by the dairy farmers. An excellent cider is made in the districts about Rathkeale, Adare, Croon, and in some other localities. The apple which produces the most esteemed liquor is called the Cackagee. The following table shows the sales of grain in the years 1826 and 1832—

<table>
<thead>
<tr>
<th>Barrels of Wheat</th>
<th>Barrels of Oats</th>
<th>Barrels of Barley</th>
</tr>
</thead>
<tbody>
<tr>
<td>of 90 Stone.</td>
<td>of 14 Stone.</td>
<td>of 19 Stone.</td>
</tr>
<tr>
<td>1826.</td>
<td>1832.</td>
<td>1826.</td>
</tr>
<tr>
<td>22,200</td>
<td>24,700</td>
<td>22,200</td>
</tr>
<tr>
<td>1826.</td>
<td>1832.</td>
<td>1835.</td>
</tr>
<tr>
<td>15,000</td>
<td>18,000</td>
<td>15,800</td>
</tr>
<tr>
<td>1826.</td>
<td>1832.</td>
<td>1836.</td>
</tr>
<tr>
<td>13,000</td>
<td>13,333</td>
<td>13,333</td>
</tr>
</tbody>
</table>

There are no returns for Glin and Croon, and those for Askeaton are deficient. There is a small manufacture of coarse woolens for home consumption, and the bleaching of linen is carried on, but on a contracted scale. There are three paper-mills, and large and powerful mills for the grinding of corn at Cahirciveen, Askeaton, Corbally, Croon, Rathkeale, Kilballock, and Greenville. In 1831 there were in the county, exclusive of the country of the city, 23 flax-dressers, 36 millers, 5 paper-makers, 15 tanners, 9 tobacconists, 1149 weavers, and 11 wool-combers. The condition of the peasantry is better in the grazing than in the tillage districts. The subdivision of farms and the system of con-cors have contributed, in some localities in the south-east and north of the county, to reduce the landed proprietors to a very low standard of subsistence. The average wages of agricultural labourers are, in winter, eighteenpence, and during the rest of the year tenpence per day, for 140 working days in the year.

There is a numerous resident proprietor, whose seats and demesnes afford a pleasing contrast to the generally bare aspect of the county; for, except about the residences of the upper classes, timber is very scarce. The number of large absentee proprietors is however very considerable, and they are not in the habit of residing in the county. Among the residents are many gentlemen farmers who practise the most approved systems of green-cropping and stall-feeding. Their example has of late years led to a marked improvement in agriculture, as well as in the breed and quality of stock.

Limerick is divided into the baronies of Ownesbey on the north-east, containing the village of Murroo, population (in 1831) 256; Clanwilliam, south of Ownesbey, containing the town of Caragh, the south-east of ditto, containing the village of Pallaseaam (pop. 379); Small County, south of the two latter, containing the town of Hospital (pop. 1131); Coisna, south of Small County, containing the towns of Bruff (pop. 1772), Croon (pop. 1774), and Dunamore, of the south-eastern extremity of the county, containing the towns of Kilfinnan (pop. 1752) and Galbally (pop. 568); Pubblebrien, on the west of Clanwilliam, containing the town of Patrick's well (pop. 512); Kenny, west of Pubblebrien, containing the town of Pallaskerry (pop. 630); Lower Connello, containing the towns of Rathkeale (pop. 4972), Askeaton (pop. 1315), Glin (pop. 1630), and Shanagolden (pop. 547); and the villages of Ardagh (pop. 413), Loughill (pop. 277), and Croagh (pop. 274); and Upper Connello, containing the towns of Newcastle (pop. 2163) and Ballingarry (pop. 1653), Drumreagh (pop. 635), and Abbeyfeale (pop. 607); and the villages of Bruree (pop. 451) and Knockaderry (pop. 321). Besides these the county contains the ruin of the liberty of Kilmallock, including the town of Kilmallock (pop. 1212).

Kilmallock is an ancient disfranchised borough which possessed a charter in the reign of Edward III., and appears to have existed as a corporation long prior to that period. It is one of the oldest towns in Ireland. The town, during the 16th and 17th centuries, was a place of very considerable importance. It walls included a spacious quadrangular area with gate-towers in each front and a strong castle in the centre. The houses of the rich and gentry of the county, many of whom resided here, were built in thecastellated style, and constituted separate fortalces. In addition to these there were numerous religious edifices of a country character. The town has been repeatedly besieged during the various civil wars of which the Desmond territory was the theatre, was finally dismantled at the close of the war of the Revolution of 1688. One only of the gate-towers is now standing, with part of the old wall, and the ruins of the castle are the centre of the town. The castles and mansions of the former residents are, with the exception of two, in ruins; so also are the religious houses; and a few years since, the only inhabited dwellings in the former burgh, were the few cabins or portions of the ruined edifices thatched in. It has however latterly revived, and there are at present some good houses and shops in the main street. There are several handsome residences in the vicinity, the principal of which is a seat of the correspondence family.

Askeaton was incorporated by charter of the 11 James I., but the corporation is now extinct, and the borough disfranchised. The Earl of Desmond had a strong castle here, the remains of which still overlook the river at the east end of the bridge. It was besieged and taken by Sir George Carew in 1597, and again by Lord Broghill's forces in the war of 1642. Vessels of 60 tons burthen come up to the town, which has an increasing trade in grain and the manufacture of flour and oatmeal. A rapid on the Deal above the town affords a good water-power and salmon-fishery.

Rathkeale is not incorporated, but is a place of brisk trade. A colony of American immigrants is planted in the neighbourhood by the family of Southwell who have contributed in a great measure to the prosperity of the town. Castle Matras, the seat of the Southwell family, erected in the reign of Queen Elizabeth, is the principal mansion in the district. The house of the Palace of Adare, which the towerers are called, exhibit a pleasing contrast to the slovenly appearance of small Irish farms in general. They are usually distinguished by an orchard and garden attached to the dwelling-house.

Adare on the Maigue is not a place of much importance; but it is situated in the midst of a highly improved district, and possesses great interest for the historian from the number and preservation of its ruined religious houses. Adare on the Maigue, the seat of the family of O'Grady for many ages past, is one of the most spacious and pleasant situations, and was, from its extensive parts of its town was formerly situated about a mile to the west of Loch Gour. The principal seats along the Shannon, including those within the county of the city of Limerick, are Mount Shannon, the residence of the earl of Clare; Roxborough, that of Sir John Fitzpatrick, of Loughill; Mount Massey, that of Lord Mosseey, and Shannon Grove, of the earl of Charleville, all in the immediate neighbourhood of Limerick; Tervoe, the residence of the Maunsell family, and Castle-town, of the family of Walier, between Limerick and the

3 H 2
river Deel; and Mount Trenchard, near Shanagolden, the seat of Mr. Spring Rice.

Prior to the Union, the county of Limerick returned six members to Parliament, two for each of the borough towns of Askeaton and Kilmallock, and two for the county. It is now represented in the imperial parliament by two county members only. At the close of the year 1833 the constituency was composed of 200,000 of electors. The assizes for the county are held at the city of Limerick, where are the county gaol and courthouse. Quarter-sessions are held at Limerick, Rathkeale, Newcastle, and Bruff, where there are courthouses and bridewells. There are bridewells also at Croom, Glin, and Kilfinnan. The police force of the county on the 1st of January, 1836, consisted of two chief constables of the first class, four of the second class, twenty-five constables, 144 subconstables, and six horse of the constabulary force; the cost of which establishment for the year 1835 was £5671. 6s. 3d., of which £3641. 17s. 4d., was chargeable against the county. At the same time there were in the county and city of Limerick one man and 492 horses under twenty-four, chief constables of the peace preservation police, the cost of which establishment for the year 1835 was £4,444. 15s. 10d. The number of persons charged with criminal offences for which they were brought before the justices of the peace in the county of Limerick in the year 1836 was 803, of whom 728 were males and 75 females. Of these, 161 males could read and write at the time of their committal, 114 males and two females could read only, and 456 males and 73 females could neither read nor write. The district containing the counties of Limerick, Cork, and Kerry is at the city of Limerick, where are also the county infirmary and fever hospital. There are four other fever hospitals and twenty-four dispensaries throughout the county.

Population.

<table>
<thead>
<tr>
<th>Date</th>
<th>How ascertained</th>
<th>Houses</th>
<th>Families chiefly employed in agriculture</th>
<th>Families chiefly employed in trade, manufactures, and handicrafts</th>
<th>Families not included in the preceding classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1792</td>
<td>Estimated by Dr. Beaufort</td>
<td>29,848</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>1831</td>
<td>Under Act 25 Geo. III., c. 120</td>
<td>35,201</td>
<td>38,746</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>1831</td>
<td>Under Act 1 Will. IV., c. 19</td>
<td>36,981</td>
<td>40,894</td>
<td>31,236</td>
<td>5,186</td>
</tr>
<tr>
<td>1831</td>
<td>Estimated by ...</td>
<td></td>
<td></td>
<td>4,472</td>
<td>108,799</td>
</tr>
<tr>
<td>1831</td>
<td>Estimated by ...</td>
<td></td>
<td></td>
<td></td>
<td>123,211</td>
</tr>
</tbody>
</table>

Prior to the arrival of the English, Limerick constituted part of the petty kingdom of Thomond, or North Munster. Donald O'Brien was prince of this territory at the time of the English invasion, and at first united with Roderick O'Connor, whom he attended to the siege of Dublin in resisting the English. Being married however to a daughter of Dermot MacMurrough, he soon after consented to the assistance of his father-in-law's allies in carrying on a feud with the English. He was assisted by the English in the possession of Osory, and on the arrival of King Henry II. A.D. 1172, he was among the first to tender his homage and receive an English garrison into his city. But he did not long continue loyal, and in 1178 it was found necessary to send Raymond de Gros with a large army to recover from him the city of Limerick, which he had wrested from its new occupiers. In the next year he got the city again into his hands on pretence of a peace, but again revolted, and his territory being thus fortified, King Henry bestowed all Limerick, excepting the city and the cantred adjoining, on the brothers and nephew of Richard, earl of Cornwall. But they, being unable to get possession, in a short time surrendered their unprofitable grant. The king then, A.D. 1179, bestowed it on Philip de Braose, at a rent of sixty knights' fees.

Braose had no better fortune than the first grantees, and Donald continued in possession till his death in A.D. 1194. In 1199 King John renewed his father's grants to the De Braose family, and bestowed a part of the reserved territory on William de Burgh, to whom he committed the custody of the city. William de Braose having fallen under the king's displeasure, and fled to Scotland, was attainted, and his lands again reverted to the crown. A portion of the forfeited lands, comprising the barony of Orneybeg, was then conferred on Theobald FitzWalter, the ancestor of the Ormonde family, and other portions on Hamo de Valois, William FitzAdelm de Burgho, and Thomas, son of Maurice FitzGerald, the ancestor of the great family of Desmond. These new settlers brought in a colony of English, chiefly from Bristol and Chester, who took up their residence chiefly in the city and towns near the river. The growth of the family of Desmond has been referred to in preceding parts of this work. [Corr. Kavan.] Maurice FitzGerald, earl of Desmond, in the beginning of the reign of Edward III., had become possessed of a great part of the counties of Limerick, Kerry, Cork, and Waterford, from which he derived a revenue of 10,000l. per annum, a vast income in those days. His pride and turbulence led to several invasions of his territory by the king's forces, and to his own imprisonment on two occasions. Thomas, another earl of Desmond, who lived in the reign of Edward IV., and whose unrestrained authority had led into frequent collisions with the government, was attainted of treason at Drogheda, A.D. 1468, and there executed.

His son was however restored to the title and estates, which continued in his family until their final forfeiture by Gerald, the sixteenth earl, in 1586. [Kavan.] The estates of this unfortunate nobleman in the county of Limerick and consisted of 56,165 acres, which were granted among the following twelve individuals: Sir Henry Billingeay, William Carter, Edward Manning, William Trenchard, Sir George Bourchier, Sir George Thornton, Richard FitzGerald, Sir Thomas de Saxonbridge, Sir John de Brackley, Lord Henry Uthered, Sir William Courtenay, and Robert Strowde, most of which names are now extinct in the county. The war which ensued throughout Munster forms the subject of an interesting historical work entitled 'Paera Hiberna,' attributed to Sir George Carew, afterward earl of Totness, in which the reduction of the various strongholds of the insurgents in Limerick, including the castles of Loch Gour, Croom, Glin, &c., is minutely detailed. On the breaking out of the rebellion of 1641, the city of Limerick and all the chief castles of the county, with the exception of Loch Gour and Askeaton, which latter now belonged to the earl of Cork, fell an easy prey to the insurgents, in whose hands they for the most part continued until the capture of Limerick by the parliamentary forces under Ireton in 1651. The forfeitures which ensued embraced almost the entire county, and introduced a numerous new proprietor. The events which followed on the accession of King James II. are detailed under the head of the city of Limerick. The war of the Revolution continued in further forfeitures comprising 14,188 acres, of a total estimated value of 61,470l. 10s. The families of Fitzgerald, Rice, Trant, and Brown were the principal sufferers. From this time until the latter end of the last century the county continued undisturbed. A spirit of insubordination among the peasantry, arising, it is said, from the severe excision of rack-rents, broke out in insurrectionary acts in 1762, and again in 1766 and 1793. These at the time were suppressed, and many of the ringleaders executed. The rebellion of 1798 did not affect the county; but the spirit of agrarian disturbance still continued. In 1815, 1817, and finally in 1821-2, the peasantry rose in arms and committed the most atrocious outrages. After several acts with the king's troops, the loss of much life on both sides, the insurrection was at length put down by the energy of the magistracy, assisted by a special commission. Great numbers of the offenders were executed or transported, and a failure of the crops in 1821 added to the effects of the war, and completely broke the spirit of the insurgents. The construction of new roads, by which the mountain districts were rendered accessible, in 1829, contributed materially to the permanence of the tranquillity so produced, and since that time Limerick has remained undisturbed and comparatively prosperous.
Limerick is among the richest of the Irish counties in antiquities. There are extensive Cyclopean remains on the hill, which stands near the Ross Quay, and on the western peninsula of the city, in a circle of 360 feet in circumference, with a wall ten feet thick composed of massive blocks of dry stone. Walls of a similar construction extend on one side to a morass, and on the other to a smaller fort, which are called linnen walls. Other Cyclopean buildings are situated on a rocky height to the east of the lake. Military earthen works are numerous in all parts of the county. The largest raths are those at Bruce, Kilpeacon, Pallasagran, and Kilfinnan. At Carrigeen near Carrigaholt, on the south side of the Shannon, the remains of cyclopean walls are situated on a rocky height. For the first sixteen feet from the base it is composed of solid masonry. Another round tower at Ardpattern in the south-east of the county was standing until recently. It is said to be the only one in the county. The castles of the early proprietors nearly one hundred still remain. Of these the most remarkable are Croom Castle on the Maigue, from which the Fitzgerald family took their title; and Lawton, now called the Martello Tower, from which the Desmond branch of the same house took their motto and war-cry of Shanado. The walls of the latter are ten feet thick. Cuppa Castle, near Askaton, was another seat of the FitzGeralds. Part of the keep, 100 feet high, is still standing. It is remarkable for the superior style in which it is built, the quoin-stones being polished. At Castle Connel are the ruins of a noble castle, once a seat of the O'Briens, which was dis mantled by General Ginkel in 1689. Carrickaganns Castle, another seat of the O'Briens, and still in a sort of rock rising suddenly from the plain to a height of several hundred feet over the southern bank of the Shannon. It was blown up by General Searcymore in the war of the Revolution; but, although 84 barrels of gunpowder were exploded under it, two of the towers are still tolerably perfect. There are several stone circles, and other supposed remains of Druidical worship throughout the county.

The county lies chiefly within the diocese of Limerick, and contains one of the 26,650 parishes of Ireland. Of the 16,468 Irish acres, equal to 26,650 statute acres, of which the north liberties, consisting of 1714 acres, lie north of the Shannon, on the county Clare side, and the south liberties, consisting of 15,744 acres, both of the river, are enclosed by the county of Limerick. The city, which is chiefly built on the county Limerick side of the river and on an island, is situated in 52° 40' N. lat. and 8° 35' W. long., and is distant from Dublin 93 Irish or 118 statute miles. The population of the county was in 1831 165,554, of which number 44,100 were in the city and suburbs.

The island on which the old town of Limerick stands was probably selected as the site of a city from the circumstance of this being the first point at which the Shannon is navigable. The Shannon, which forms the western boundary of the county of Limerick, is about a statute mile in length, by a quarter from to half a mile in breadth, and lies nearly north and south, having the main stream of the Shannon, about 500 feet in width, on the western side, and a smaller branch, called the Abbey river, of an average breadth of 200 feet, on the east and south.

The ancient city of Limerick is by some supposed to be the Regia of Ptolemy. It certainly was a place of some note in the fifth century when visited by Patrick. From that time until the reign of Henry II. of England, [Limerick, County], the Danes made their first attempt on Limerick in the year 812; and, although repeatedly baffled, succeeded about the middle of that century in getting possession of a part of it. They, however, have been compelled to yield to the English trading people, and to them the first effectual fortification of the island of Limerick is attributed. Towards the close of the tenth century, they were reduced by the celebrated Brian Boruimhe, and rendered tributary to the kings of Munster. Afterwards they were still more effectually reduced. The settlement did not take place till after the death of Donald O'Brien, who was their king at the time of the invasion by Henry II. of England, [Limerick, County]. The first charter under which it was appointed a.d. 1195. King John coming to Ireland in 1210 witnessed its foundation among other places, and caused Thomond Bridge, which up to the last year (1838) was still standing, to be erected over the Shannon. He also had the castle of Limerick built, and established a mint in the city, to which he granted large privileges by a charter of the 2nd year of his reign. Great numbers of English settlers now arrived, and the city continued to prosper until the invasion of Ireland by Edward Bruce, who burned the suburbs in 1314, and during the reign of Edward II. The castle of Limerick was surrendered to the allies. On the termination of this war the citizens obtained a grant of murage for the further strengthening of their fortifications. The suburb of Irishtown, which had now become an independent barony, was walled in, and in 1495 its fortifications were completed by the erection of St. John's Gate. A tholsel, or town-house, was erected in 1449, and in 1500 a vaulted pier, which served both as a quay and a battery, was built. Throughout the disturbances caused by the rebellions of the earls of Desmond and the other turbulent Irish potentates in the reigns of Henry VII., Henry VIII., and Elizabeth, the citizens of Limerick remained strictly loyal.

At this time the town appears, from various maps remaining, to have been much more extensive. In addition to King John's castle, commanding the bridge into Clare, there were twenty-four towers at the several angles of the wall which surrounded Englishstown, or that part of the city which was built on the island. Dromore Castle, in the centre of Irishtown, consisted of twelve towers connected by high walls and surrounded by a fosse and outworks, and there were towers defending the several gates in the wall which encompassed this entire suburb. The separation of the castle from the town, in order to place it under the provisions of a charter granted by King James I., a.d. 1609. Early in the war which succeeded the Rebellion of 1641, Limerick was seized by the Roman Catholics, and the town was burned in 1643; they considerably strengthened the fortifications of Irishtown by the erection of towers and rampsarts inside John's Gate. The supreme council of the Roman Catholics having removed hither in 1646, Limerick became the scene of various commotions and outrages produced by the bigotry of those who adhered to the extreme measures of the Nuncio Rinuncini. General Treton, at the head of the parliamentary army, appeared before the city in April, 1651. The garrison was commanded by General O'Neil, whose defense of Clonmel had already gained him much reputation, and who fully sustained his character for skill and courage during a severe siege of nearly six months. On the surrender of the city, several leading persons of the Roman Catholic party, including the titular bishop of Lixy and friar Moule, who had been excepted out of the terms of capitulation, were executed. Tranquillity being restored by the re-establishment of English government, a considerable influx of Protestant settlers took place; but the accession of Charles II. and the capitulation of the city to General Monck deprived them of their influence in the city and caused great numbers to return to England. Immediately after the battle of the Boyne and the restoration of King James II., and the complete encirclement of the city, stands against Limerick, now strongly garrisoned by the flower of the Irish army, under the duke of Berwick and General Sarsfield. 

He arrived at Caherconill on the 7th August, 1690, and, after some skirmishing, opened his fire on the citadel on the 9th. Sarsfield having intercepted and destroyed the heavy artillery which was on its way from
Cashel, prevented the construction of an effectual battery until the 17th. A practicable breach having been effected between John's Gate and the Black Battery, on the 26th, the assault was made the following day.

The besiegers twice gained the counterscarp, and were twice driven back: at the third attempt a considerable body of troops forced their way into the town. One division of these was disorganised, and to a great extent destroyed, by the explosion of a mine under the Black Battery, which they had planted. The other division was assailed by the amazing fury of a mixed crowd of soldiers, citizens, and women, and was almost to a man exterminated. The besiegers, after a loss of 1,700 men killed and wounded, were forced to retreat on the 29th of August, when they dismantled their batteries and retired towards Clonmel.

In the early part of the next year Athlone was carried by the Protestant army, and the decisive victory at Aughrim soon after compelled St. Ruth, who commanded the Irish, to draw again towards Limerick as the last tenable position which was now left him in Ireland. On the 25th of August, 1691, General Ginkel invested the town on the south side of the river; and on the 30th opened his batteries. The fire against the English town was directed from a battery of ten pieces for hot shot on the left, another of twenty-five heavy battering cannon on the right, and eight mortars in the centre. A fort, which had been captured early in the siege, and another battery on the south-west, cannoned on the town. On the 1st of September a gun was detached by a pontoon-bridge across the Shannon, to cut off the communication with the county of Clare, which being effected, and the works of the besiegers everywhere pushed close to the walls, provisions failing and the expected reinforcements from France not arriving, the garrison on the 23rd of September proposed an armistice.

Negotiations were now opened, which terminated, on the 3rd of October, in the signature of the celebrated treaty of Limerick. It was agreed that the surrender of the place and the Roman Catholics should enjoy the same privileges which they had in the reign of Charles II. The garrison were allowed to march out with arms, baggage, and colours flying, and to embark for France, either in the king's ships, or their own. Of 14,000 men so circumstanced, about 11,000 went on board the French fleet, which, two days after the execution of the treaty, arrived off the coast. These formed the nucleus of the Irish brigade, which was afterwards so celebrated on the Continent.

The city now began to recover from the effects of these repeated disasters. In 1696 lands were put up in the public streets at the expense of the mayor. In the following year the castle of the Irish town was burnt down by a mob, but erected on its site; and in 1717 the Abbey river was partly quayed in. About 1760, besides several new roads, a canal was commenced, by which the Shannon was rendered navigable to Killaloe. A sum of 15,000£ was granted by the works, by the king's notice, at their option. Of 14,000 men so circumstanced, about 11,000 went on board the French fleet, which, two days after the execution of the treaty, arrived off the coast. These formed the nucleus of the Irish brigade, which was afterwards so celebrated on the Continent.

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ranges of prison buildings, and having a fine Doric entrance in front. The whole was designed by Mr. Latrobe. The lunatic asylum, opened in 1821, for 150 patients, cost a total sum of 29,856l. 11s. 9d. It is a plain extensive collection of buildings, also on the radiating principle.

The port of Limerick is under the control of commissioners appointed by an act in 1802. Their revenue averages 1500l. per annum, and they have obtained loans amounting to 55,384l. from government for the purpose of improving the river by the construction of floating locks. The plan adopted is from the design by the late Mr. Ricketts. It is ingeniously carried out, and a bar acquires across the river at Kelly's quay, with locks at each side, and a foot-bridge above. This would give a constant depth of from sixteen to eighteen feet in that part of the river extending from a little below Thomond bridge to the proposed dam. It is also proposed to deepen the river along its southern bank west of Wellesley bridge, and to convert the present irregular series of wharfs into one continuous line of quays. The estimated expense is 53,730l. 16s. The corporation are also at present engaged in rebuilding Thomond bridge, for which purpose they have procured a loan of 9000l. from the Board of Works. The estimate is 12,600l. Wellesley bridge above-mentioned was commenced in 1824, and cost 60,000l. It has five elliptical arches, each 70 feet in span, and rising 36 feet above the water level. The principal arch of this bridge has been recently taken down and replaced by a beautiful structure of a single arch. The Abbey river is also crossed by Park bridge, a little higher up.

Limerick is the head-quarters of the south-western military district, and includes in its boundaries above mentioned, contains an artillery and infantry barracks in Irishtown; making, on the whole, accommodation for about 2000 troops.

The trade of Limerick has increased with the growth of the city, though not in an equal degree. Being the natural outlet for the produce of a great part of the counties of Limerick, Clare, Tipperary, Cork, and Kerry, it has since the termination of the civil wars been, next to Cork, the chief seaport of Munster. In 1835 this city had 6264 tiers and 258 barrels of beef, 4417 and 9100 barrels of pork, 19,750 cwt. of bacon, 65,000 firkins of butter, 51,000 barrels of wheat, 364,000 barrels of oats, and 12,500 barrels of barley. In 1835 there were exported of corn, meal, and flour, 49,000 tons and 15 cwt. value 38,400l.; of provisions, 7705 tons and 15 cwt. value 33,200l.; of feathers 9 tons, value 900l.; of wine 850 gallons, value 470l.; of spirits 16,640 gallons, value 420l.; of beer 2640 gallons, value 260l.; and of other commodities to the value of 306l: making a total value of exports of 726,430l. In the same year the imports amounted to a total value of 323,740l.; of which the chief items were, for tobacco, 71,400l., sugars 36,800l., fish 25,400l., tea 24,200l., iron 23,450l., and coal, 21,000l. Limerick has also an extensive and increasing export trade through the Shannon and Grand Canal, by offer of Dublin.

Return of goods carried from Limerick and shipped at Dublin for Liverpool:

<table>
<thead>
<tr>
<th>Year</th>
<th>Wheat</th>
<th>Flour</th>
<th>Oatmeal</th>
<th>Butter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1833</td>
<td>187 tons</td>
<td>520 tons</td>
<td>543 tons</td>
<td>4,998 firkins</td>
</tr>
<tr>
<td>1834</td>
<td>1,218 tons</td>
<td>1,750 tons</td>
<td>1,192 tons</td>
<td>10,097</td>
</tr>
<tr>
<td>1835</td>
<td>402 tons</td>
<td>5,269 tons</td>
<td>553 tons</td>
<td>10,771</td>
</tr>
<tr>
<td>1836</td>
<td>289 tons</td>
<td>7,158 tons</td>
<td>1,158 tons</td>
<td>12,776</td>
</tr>
</tbody>
</table>

The gross freight from Limerick to Dublin, for grain or flour, is 15s. per ton, and the total distance 131 miles. There is also a very brisk passenger traffic on the same line, as well as from Limerick downwards. The number of passengers conveyed to and from Limerick by the navigation above the city, in 1836, was 14,600. The number of passengers carried by Limerick by the navigation below the city, in the same year, was 23,851. It is estimated that the total quantity of agricultural and other produce carried by inland canuineaes into Limerick, in the year 1837, amounted to 322,000 tons, which 60,000 tons were for exportation, and that the total quantity of goods carried by inland canuineaes from the city, in the same year, was 32,400 tons, including 15,000 tons of imported goods. On the 5th of January, 1836, the number of vessels registered as being at sea was 214, of an aggregate tonnage of 5008 tons. The number of vessels which entered inwards from all parts, in 1836, was 348, of an aggregate tonnage of 66,184 tons; the number of vessels which cleared outwards, in the same year, was 592; of an aggregate tonnage of 70,327 tons. The receipts for the year 1835 amounted to 142,636l. 11s. 9d. and the excise duties for the same year to 71,616l. 6s. 2d.

In 1831 there were, in the county of the city of Limerick, 9 breweries, 6 glovers, 3 paper-makers, 22 flax weavers, 3 woolcombers, 1 bleacher, 3 flax-dressers, and 18 shipwrights. About 500 females are occupied in the manufacture of lace and tambour-work. The glove-trade, which was formerly carried on extensively, has now declined; the district being at present supplied by Limerick gloves. The Limerick wharfs are much frequented in Cork. There are one large distillery, seven breweries, and some small iron-foundries and cooperages. The first steam-engine erected in Limerick was put up in 1818. There are twelve engines now at work in the city, of an aggregate power of 206 horse-power. There are branches of the Bank of Ireland, provincial, national, and agricultural and commercial banks, established in Limerick.

The city has been lighted with gas since the year 1824. The system, combines the first innovation, with the chief fuel is turpentine, which is annually consumed. The annual import of coal and culm is nearly 30,000 tons, but of this about one half is for country consumption. The streets are well paved, particularly in the new town.

Population.

<table>
<thead>
<tr>
<th>Date</th>
<th>How sacrosancted</th>
<th>Houses</th>
<th>Families</th>
<th>Families chiefly employed in agriculture</th>
<th>Families chiefly employed in trade, manufactures, and handicraft</th>
<th>Families not included in the preceding classes</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1792</td>
<td>Estimated by Dr. Beaufort</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1821</td>
<td>Under Act 55 Geo. III. c. 120</td>
<td>7,208</td>
<td>12,419</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1831</td>
<td>Under Act 1 Will. IV. c. 19</td>
<td>7,820</td>
<td>11,915</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In 1834 there were, in the parishes of St. Michael, St. Mary, St. John, St. Nicholas, and St. Munchin, which comprise the city, 37 day-schools, educating 1496 males and 1139 females. Of these one is a diocesan school for males, supported by contributions from the clergy of the diocese; and the charity of the late Mr. Kyd, of the city. The charitable foundations, besides the free-schools, are the county hospital; the house of industry, founded in 1774; the fever and Lock hospital, said to be the first ever hospital established in the United Kingdom, founded by Lady Hartington in 1781; the fever and hospital, opened in 1812; Hall's alias, opened by Dr. Jeremy Hall in the early part of the last century; the corporation almshouse, for reduced widows; the St. George's widows' asylum; Mrs. Villiers' almshouses, also for widows, erected in 1826; and several other minor charities.

The grand-jury presentments for the county of the city,

Since 1834 several large schools have been opened. There is a library of 2000 volumes attached to the Limerick Institution, which was founded in 1809. There are four newspapers published in the city, the number of stamps issued to which, in 1835, was 24,533.

The charitable establishments, besides the free-schools, are the county hospital; the house of industry, founded in 1774; the fever and Lock hospital, said to be the first ever hospital established in the United Kingdom, founded by Lady Hartington in 1781; the fever and hospital, opened in 1812; Hall's alias, opened by Dr. Jeremy Hall in the early part of the last century; the corporation almshouse, for reduced widows; the St. George's widows' asylum; Mrs. Villiers' almshouses, also for widows, erected in 1826; and several other minor charities.

The grand-jury presentments for the county of the city,
for the year 1835, amounted to £311lf. 16s. 4d., of which £394£. 2s. 11d. was for buildings, salaries, &c., £25f. 10s. 4d. for bridges, &c., and the remainder for repayment of government loans. The parish of St. Michael, which comprises the entire new town, is exempt from grand jury assessment. Its proportion of the general taxation is levied under the 47th and 51st of George III. The weight of the common charges falls on the four districts.

(Fitzgerald and Macgregor's History of Limerick, Dublin, 1826; Cox's History of Ireland; Parliamentary Reports and Papers.)

LIMESTONE, a common aggregate, is a very large proportion of the organic bodies which constitute the stratified rocks, few except the early primary limestones being wholly deficient of shells, corals, &c. Occasionally shells and zoophytes contribute to the beauty of particular marbles, as the shell marble of Bath, Sparrow, Purbeck, &c., the Derbyshire and Kilkenny marble is black; there are many veined and patterned marbles, as those of Babacombe, Sienna, &c.

LIMITS. In a number of cases, as the limestone, there is a very large proportion of the organically constituted rock, the colour generally white; the Derbyshire and Kilkenny marble is black; and there are many veined and pattern-coloured marbles, as those of Babacombe, Sienna, &c.

LIMIT; LIMITS, THEORY OF. The word limit implies a fixed magnitude to which another and a variable magnitude is subject. In the case of a square, the side is being impossible however that the variable magnitude can absolutely attain, or be equal to, the fixed magnitude. In this strict sense of the word there are two conditions which must be fulfilled before A can be called the limit of F: first, P must never become equal to A; secondly, F must be capable of being made as nearly equal to A as we please.

The method of limits is in reality nothing more than one way of evading the use of the word infinite in an absolute sense [∞]: which may be shown as follows. If we assume x and x 2 to be the same magnitude as a whole, then, by the algebraical definition of x, x 2 may be said to be equal to x 2, or 2x, there can be no objection to saying that when x = 7, x 2 = 49, because 7 is a definite number, and the operation 7 × 7 is perfectly intelligible. And we may, if please, assume t to be equal to x, so that if x may be made as near as we please to 7, x 2 can be made as near as you please to 49. Or, 7 being the limit of x, 49 is the limit of x 2. The preceding is superfluous, because it is more simple to say at once that when x 2 = 49 when x = 7. But suppose that x in the magnitude of being taken at pleasure, must be determined by means of y, and let the investigation of the relation between x and y lead to the expression

\[ y = \frac{z + 7}{z} \]

then, so long as y has any finite value, x must be more than 7; nor can the assertion x = 7 be made without the implication that y is infinite. In this case then we can only say that x can be made as near as you please to 7, if we may take y as great as we please; in which case x 2 can be made as near as you please to 49. In the language of the article, we say (for abbreviation, as explained in \[ ∞ \]) that x approaches 7, and that x 2 approaches 49. But suppose that x, in the language of the present article, we say that x has the limit 7, and that the limit 49, when y approaches without limit. We shall now translate the various illustrations given in the article just cited, from the language of infinites into that of limits.

For this read—When the denominator of a fraction increases without limit, the numerator remaining the same, the fraction diminishes without limit.

Every circle is a regular polygon of an infinite number of sides. For this read—If the number of sides of a regular polygon inscribed in a circle be increased without limit, the polygon approaches without limit to the circumference of the circle, and is the limit of all the regular polygons which can be inscribed in it.

When x is finite, A and B are both finite, but A is a greater finite than B. For this read—When x increases without limit, A and B both increase without limit, but the ratio of A to B is the limit of A: if both A and B are variables, read—When x increases without limit, A and B approach to the same limit.

A finite quantity x, divided by an infinite quantity, is nothing. For this read—When the denominator of a fraction increases without limit, the numerator remaining the same, the fraction diminishes without limit.

Every circle is a regular polygon of an infinite number of sides. For this read—If the number of sides of a regular polygon inscribed in a circle be increased without limit, the polygon approaches without limit to the circumference of the circle, and is the limit of all the regular polygons which can be inscribed in it.

When x is finite, A and B are both finite, but A is a greater finite than B. For this read—When x increases without limit, A and B both increase without limit, but the ratio of A to B is the limit of A: if both A and B are variables, read—When x increases without limit, A and B approach to the same limit.

Two infinitely small quantities may have a finite ratio. For this read—When two quantities increase without limit, their ratio does not necessarily increase without limit, but may have a finite limit.

Two infinitely small quantities may have a finite ratio; or—when two quantities diminish without limit, their ratio...
does not necessarily diminish without limit, but may have a
finite limit.

When A is infinitely small, B is infinitely great. For this
read — When A diminishes without limit, B increases without

An infinitely small arc of a curve is equal to its chord.
For this read — When the arc of a curve diminishes without
limit, the ratio of the arc to the chord, or the fraction
arc
chord
approaches the limit unity.

Of two infinitely small quantities, one may be infinitely
smaller than the other. For this read — When two quantities
diminish without limit, it is also possible that their ratio
diminishes without limit.

Hitherto we have been dealing with purely verbal con-
siderations. These are not unimportant, since it is of great
consequence that the fundamental notions of mathematics
should be expressed in those terms which have always re-

Infinite magnitudes are often incorrectly compared to
finite magnitudes, leading to the misconception that

For this read — The limit of a ratio is not a number, but
a magnitude. The limit of a given ratio is a point of

Step and convergent methods involve the use of
approximations and iterative processes to find

The latter form of the proposition is requisite in Geometry (Proposition); the former is sufficient in Algebra; and the proof is as fol-

Supposing A and B for instance to be varying lines, always
equal, let their limits, if possible, be the unequal lines KL and MN.

K
L
M
N
Since A and B are equal, and since the first can be made
as near as we please to KL, and the second to MN, it fol-

but this is not true, since the limits are fixed and invari-
able magnitudes, differing (if they differ at all) by a fixed
and invariant quantity. Consequently the limits cannot
be other than equal. The proof of the proposition of
Archimedes is given in Geometry, p. 154.

This proposition, being once understood, is more fruitful
in applications than almost any other. We shall give one
instance from geometry under self-evident.

If it is true that the ellipse is a conic section, then
the limit of the ellipse (or the circles themselves) are in that ratio which the polygons
always preserve.

As an instance from algebra, apply the Binomial Theo-
rem to the development of

which gives, by an easy transformation,

a series which (by the method in Convergent) is always
convergent when \(nx\) is less than unity. Apply the same
method to the development of

which gives in the same manner

Now B is evidently \(A^y\); and if when \(n\) diminishes with-

out limit, B and A approach the limits P and Q, then B
and \(A^y\) (equal quantities) will approach the limits Q and

That of B, on the same supposition, is

Hence the second of these series is the yth power of the
first; a theorem which the algebraical student will recog-
nise as one of the most important in that science.

The method of limits generally means the Differential
Calculus exhibited upon the principle explained in the
article Differential Coefficient. It is admitted, by a
large majority of those who are capable of forming a judg-
ment, that the method by which this theory should be estab-
lished is either the method of limits, or of that of Lagrange
Functions, Theory of or a mixture of the two. The
number of those who contend for the second has very much
diminished of late years; and the controversy (if such a
thing can be said to exist) lies between the first and third.

The reader will find in the eighth number of the Treatise
on the subject, published by the Society for the Diffusion
of Useful Knowledge, some additional reasons for considering
the use of assumed expansions as fallacious. See also
Seeks.

It has been customary in elementary mathematical works
to endeavour to postpone the theory of limits as late as pos-
sible. Such an attempt can never be very successful; a

It is not always true that the limit of a ratio is the
limit of its terms. Thus, when 

The ratio of the limma is \(\frac{243}{245}\), and for all practical pur-
poses it may be considered as the minor semitone of the modern
scale.

LIMMA/CRA. [LIMMEYS].

LIMNEANS, Limneans, or more properly Limnienens, in
French (limy, limuc, a marsh, pool, or lake), Lamarek's
name for a family of fresh-water testaceous mollusks, con-
sisting of the genera Planorbis, Limnaea, and Physa. The
family name now in general use is Limnideae.

Two of these forms (Planorbis and Limnea) were in-
cluded by Lamarek under his grand genus Helix; the third was
arranged by him among the heterogeneous assemblage of
testaceous animals, which he placed under his genus Bulla.

Most of the first of these under the name Plan-
orbis, and the second under the name of Bucurium, a name
already pre-occupied by Lamarek for a genus of marine tes-
taceous gastropods entirely different, and Lamarek changed
the name to Limnaea, or, as it should be more correctly
written, Limneae. The second was Planorbis Lamarck to have been the first
who established the genus afterwards named Physa by
Draparnaud, and the former gave it the appellation of
Bruln. Bruguères followed Müller as far as regards Planorbis,
but he placed the other two forms under his genus Bulinus,
a name which we have reason to think owed its origin to the
confused engraving of the word Bullus, 'Le Buin Bulinus,' on Adanson's plate (Histoire Naturelle du Sén-
gal, pl. 1), the Latin word at first sight being liable to be
article Bulinus, vol. vi.)

Lamarek collected these three genera in the following
order, Planorbis, Physa, and Limnea, under one family,
his Limnienens, with the following definition:—

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Amphibian Trachelipods, generally deprived of an operculum, and having flattened tentacles. They live in fresh water, and come to respire the air at the surface.

Their shell is spiral, most frequently smooth on the external surface, and always having the right edge of its aperture sharp, and not reflected.

The general opinion seems to be that these three genera are well associated in forming the family Limnæidae.

Cuvier, though he gives them no common name, places them together, observing, that the

Physa and Limnaea are the faithful companions of the Limnæa in all our stagnant waters.

M. de Blainville makes his first family of Pulmonibranchiata (Linnæa) consist of these three genera; and M. Rang, retains them in Limnae, as the fourth family of the Pulmonibranchiata (Ferussac). (Pulmonibranchs of De Blainville).

Mr. G. B. Sowerby is of opinion of the genera Physa and Limnaea ought not to be separated. He observes ('Genera Limnae,' No. 8), that he finds himself obliged either to unite two genera which have appeared distinct to Lamarck and Draparnaud, and which have been admitted by some succeeding writers, or, contrary to his wishes, and, as he thinks, to the interests of zoological science, we must not only separate the Physa from the Limnaea, but we must also adopt Dr. Fleming's Aplexa, and Dr. Leach's Myxus, each of which would, as far as we yet know, only contain one species. 'All these, he adds, are all fresh-water shells; and the only describable difference in the shells, except mere specific differences, consists in the Aplexa and Physa being heterostrophic shells, while the Limnaea are dextral, and the Myxus are sinistral. His acknowledgements are found in the animals, chiefly in their tentacula and in their mantles; the Myxus of Leach and the Physa of Draparnaud having the power of extending the edges of their mantle over a large portion of the external part of their shell, which the Limnaea of Lamarck and the Aplexa of Fleming have not, while the tentacula of all but Physa are compressed and triangular, and even in Physa they are compressed according to Lamarck, though differ in all of them the eyes are situated at the internal base of the tentacula, supported on very short tubicular pedicles. He concludes by unifying the whole of these genera under the generic appellation of Limnæa, and divides them into four sections, thus:

1. Shell very thin, subglobos, polished; internal lip dilated; aperture ovate, dextral. Animal with the mantle reflected; the tentacula short and trigonal. Myxus, Leach's MS. Helix glutinosa, Mont. Limnaea glutinosa, Drap.
2. Shell thin, ovate, polished; internal lip dilated, the aperture ovate and trigonal. Animal with the mantle not reflected; the tentacula subulate. Physa, Lam. Bulla, Linn.
3. Shell thin, oblong, polished; the internal lip equalizing the external, the aperture lanceolate and sinistral. Animal with the mantle not reflected; the tentacula trigonal. Aplexa, Fleming. Physa, Drap. Bulla hypnorum, Linn.
4. Shell thin, generally oblong, rather solid; the aperture oval and dextral, the inner lip equalizing the external one. Animal with the mantle not reflected, the tentacula compressed and trigonal. Limnaea, Lam. Helix, Linn.

M. Deshayes rejects this opinion, and retains Physa as a genus, for reasons which the reader will find under that head in this article.

Returning to Lamarck, we find him remarking upon the cause which led to the peculiar organization of his Limnæa, in accordance with one of his favourite fanciful theories. It would seem, says he, that those fluvial or limnic Trachelipods, which inhabited waters of little depth, such as those of small rivers, ponds, and marshes, which are exposed to the accident of being dried up, were often reduced to live in mud more or less desiccated. They then found themselves forced to habituate themselves to the air, to breathe; for this reason, and having modified their branchiae, like those of the Colimacæ, is become to them a matter of necessity; so that though living in the water, they are now obliged to come from time to time to its surface in order to breathe the free air. This circumstance in their manner of life has had its influence in rendering an operculum useless to them; and they are in general deprived of one. Those fluvial from Trachelipods, on the contrary, which we know to be unable to respire anything but water, have all an operculum.

It is only necessary to reflect for a moment on the principle involved in these suppositions, to reduce them to their true value.

Leaving his theoretical views for his practical observations, we find Lamarck thus neatly pointing out a leading point in the structure of the Limnaea, by distinguishing the family. 'The Limnæa has only two tentacula; they are flattened and never oculated at their summit.'

M. de Blainville thus defines his family Limnæa —

Body very variable in form; two tentacula eminently contractile, carrying sessile eyes at the internal side of their base.

Shell delicate, with the external border constantly trenchant.

He further observes that the animals of this family are always found in fresh waters, stagnant or running, often at their surface, and sometimes in their depths. The shell, he remarks, presents very variable forms. He arranges the genera in the following order: Limnaea, Physa, Planorbis.

M. Rang gives a more extensive definition of the Limnæa of Lamarck (Limnæa of De Blainv.); Limnococliides, without a collar, of Latreille, thus:

Animal elongated, having the body distinct from the foot, and tentacula spirally backwards; never any buckler (or cuirass), but a collar formed all round the neck by the edge of the mantle; head surmounted by a sort of veil which is very large; tentacula two in number, the eyes differently situated at their base; pulmonary cavity showing its orifice upon the collar; organs of generation separate; anus near the orifice of the lung.

Shell always complete, very much rolled up (très enroulée), delicate, and with the external border or lip trenchant.

All fluvial.

M. Rang arranges the genera in the following order: Planorbis, Limnaea, Physa. This is the order given by Cuvier, and, as far as these three genera are concerned, by Draparnaud, who however makes Ancylus interveiw between Planorbis and 'Limnæa.'

Planorbis.

Animal elongated, compressed, slender, and very strongly rolled up; head furnished with two tentacula, which are contractile, seaceous, very long, and occluded at their internal base; mouth furnished superiority with a crescent-shaped tooth, and below with a lingual mass armed with small hooks, and surmounted by a sort of veil which is short and notched; foot oval and rather short; respiratory orifice on the left, upon the collar, and approximated by that of the anus; organs of generation separate, on the same side; the male organ near the tentacle, and the ovary at the base of the collar.

Shell rather delicate, sinistral, very much rolled or coiled upon the same plane; concave on each side, the spire re-entrant (reentrant); aperture rounded with a sharp border, and interrupted by the convexity of the whorl which precedes it. (Rang.)

Planorbis. Shell and animal; and eggs. [Physa cardioïdes. A mass of eggs of Planorbis cornus on a leaf.]

Geographical Distribution. —Widely diffused. Very few fresh waters, either running or stagnant, are without some of the species.

M. Rang remarks that the genus Planorbis offers a curious fact, namely, that the animal as well as the shell is sinistral, and consequently the orifices, instead of being situated on the right side, as in other gastropods, are placed on the left.
Mr. Sowerby (Genera, No. 4) remarks that the principal point turned to the general appearance of the shell, that the shell of the genus are what are called reversed, a fact doubted by some, who have described the species as unbilaterated above. A careful examination of many of the species in a living state satisfied Mr. Sowerby that the assumption of the shells with the dextral mouslsks, and that the heart is placed in the Planorbis on the right side, and the respiratory orifice on the left, exactly the reverse of their position in most others. But, he further observes, the knowledge of the animals is necessary, that no cases, even when the shell itself carries the demonstration, it being only needful to observe on which side of the shell the very apex of the spire is to be seen; if we take that side for the upper, in conformity to the analogies, it will, how- ever, be evident that the aperture is on the left-hand side. Mr. Sowerby had for a long time entertained great doubt about the identity of some of the fossil species, which he is now satisfied are reversed shells, in the same manner as the other Planorbes, although the lower part of the disk is almost flat and carinate at its edge, and therefore bears a considerable resemblance to the flattened spire of some land shells, particularly the Helix albella.

M. Deshayes defines the general shell discoid with a depressed spire, whose apex is always distinct: its whorls turn from right to left, so that when the spire is held up- wards and the aperture seen, it is on the left-hand side. These shells are ventricose, frequently carinated, either above or below, and more or less flattened. They are sometimes greater but (Mr. S. believes) never less; sometimes the peritreme, or lip, is thickened and expanded, and its lower part is always extended forwards; the umbilicus is very much expanded, and there is no operculum.

Mr. Sowerby supposes that some species, particularly when young, are covered with a hairy epidermis.

M. Deshayes (ed. Lam., vol. viii., 1839) does not make any allusion to Mr. Sowerby's observations; but he comes to a very different conclusion on the subject of the animals, as naturalists know, are discoid shells, generally delicate and fragile, found in abundance in stagnant waters. Some of the species are so much flattened that they seem perfectly spherical, so that it is difficult, in these last at least, to distinguish the upper surface from the lower. This difficulty brings it with another, namely, that of determining whether the species are dextral or sinistral. These interesting questions had not been deeply discussed when M. De- shayes (1831), in the Transactions of the Linn. Society of Bordeaux, a well executed and very extensive memoir, in which he examines these different questions. 'In my preceding works,' continues M. Deshayes, 'I have not perhaps attached sufficient importance to those researches which it was necessary to examine the living animals, but nevertheless in 1824 I disposed cuneologically of a part of the difficulty by saying, in my work on the fossils of the Paris basin, that the upper side of the Planorbes may be distinguished from the lower by the minor side of the aperture, the upper part of which is most prominent (avancé). This mode of distinguishing the upper surface from the lower, and of placing the shell in its natural position, once granted, it becomes easy to recognise which species are dextral and which sinistral. By these means we perceive, as M. Desmoulins has very well demonstrated, that nearly all the known species of Planorbes, both living and fossil, are dextral; even those which the most esteemed authors have judged to be sinistral, from the depth of the umbilicus. But if by the observation of the aperture we come to the conclusion that the shell of the Planorbes is dextral, a difficulty presents itself, namely, that the animals which inhabit these dextral shells are sinistral, if we judge by the position of the three orifices which the ammonious mockks exhibit exteriorly. Thus Cuvier has well remarked this transposition of the orifices in Planorbes cornuc., and has not hesitated to declare this species sinistral, contrary to the opinion of Linnaeus, Milléet, and of Draymann, who believe the species to be dextral. Cuvier, however, rates his opinion by an important fact, namely, that the heart is on the right side in Planorbes, whilst it is on the left in dextral shells of other genera: but Cuvier did not apply this argument to the sinistral shell; finding the heart on the right and the orifices on the left, he came to the con-

clusion that Planorbes cornuc is sinistral; brought nevertheless to have seen, before he delivered this definitive judgment, in what real position the organs are. It is to this point that M. Desmoulins has especially applied himself, and he saw that all the organs of digestion and generation remain in the position which they hold in the dextral mollusks, and that the orifices only have an anomalous position. Thus the observations of M. Desmoulins explain how, in the genus Planorbes, appearances place a sinistral animal in a dextral shell (a phenomenon which we cannot conceive), and how, in reality, the animal is dextral as well as its shell, and that there is no other derangement in the relationship of these organs excepting in regard to the heart, and the termination of the digestive organs and those of generation.

The species are numerous. Lamarck recorded twelve recent species, including Planorbes Cornu Arisits, which is not a Planorbes, but a discoid Ampullaria, as its animal and operculum testify. M. Deshayes adds ten more in the last edition of Lamarck; Conrad, Troschel, and Brodcrisp, have each described one in addition; and new species are brought home by almost every expedition. M. Rang states that he has known individuals of Planorbes leucostoma collected at Seize near Bordeaux, by Mr. Durieu, where the animals had closed the shell by a kind of epiphagum analogous to that of the Helices.

Example, Planorbes cornec.; Helix cornec., Linn.

Description.—Shell opaque, plano-depressed above, widely umbilicated beneath; of a horn or brown umber colour; the aperture is transversely striated.

Locality.—This, the largest living species of Europe, if not the largest generally, is found in sluggish rivers and stagnant waters, such as old water-courses and drains in low swampy situations. Thus it is plentiful about Oxford.

Montagu says that it is certainly more local than it is described to be by Da Costa, who states that it is common in all ponds, rivers, and lakes throughout England. This, adds Montagu, is far from the case, although it is sufficiently plentiful in some parts, and he states that he never found it further westward than in Dorsetshire, where, about Warcham, it is abundant. Lamarck records it as an inhabitant of France in the rivers, and very common, about Paris, in the channels of the Seine.
little narrowed behind; edge of the right lip sharp,\* columnellate, a little twisted, but without any plait; spire more or less sharp and elongated; the last whorl larger than all the others conjoined. \(\text{Rang.}\)

Physa. Shell and animal; \(a\) eggs.

Physa hypnorum; \(b\) mass of eggs, nat. size; \(c\) the same, magnified.

Geographical Distribution of the Genus.—Very extensive, species have already been found in the tranquil fresh waters of all the four quarters of the globe. Europe has several species, and the form occurs in America, in Africa (there being little doubt that the Bulin of Adanson is a Physa), in New Holland, where it was found by M. Quoy, and in the Isles of Bourbon and France, whence it was brought by M. Rang. Mr. Gray has named two species from the East Indies and one from Peru.

Mr. G. B. Sowerby, as we have already seen, unites Physa and Biomphalaria, making the two genera include the form for the reasons above given. M. Rang, who notices their inhabiting the same places as the Limnaea, and their resemblance in organization, observes that the animal of Physa is distinguished from that of Limnaea by the form of its tentacles, as is the shell by its generally circular disposition like that of the Planorbes. He also notices the observation of M. de Blainville that there exist dextral species.

M. Deshayes, in the last edition of Lamarck (tom. viii., 1858), remarks, that the genus Physa, established at first by Adanson under the name of Bulin, was not definitely introduced till Drakehausen presented it anew under the name which it still bears. Adanson, he continues, had too much sagacity not to perceive the relationship of his Bulin with the Planorbes, and fails not to insist upon this point, although he points out the characteristic differences of the two genera. After some observations on the doubts of naturalists as to the analogy presented by the animals of Planorbes, and those of Physa and Limnea, and the absence of doubt as to the distinguishing characters of the two last-mentioned genera, M. Deshayes thus continues: "Certainly, if we consider the shells only, there is a very great resemblance between a Physa and a Limnea, but all the Physa are sinistral, the Limnea are dextral; the Physa have a polished and shining shell, because the animal has its mantle lobated and turned back upon the shell, which is not the case in Limnea; the animal of Physa carries on its head elongated and narrow tentacles, like those of Planorbes, and not triangular and thick ones, like those of Limnea. These characters seem sufficient to retain the two genera in the system, and, consequently, to reject the opinion of Mr. Sowerby, who unites them in his genus."

Lamarck records four species of Physa (recent). M. Deshayes, in the last edition of the 'Histoire,' increases the number to ten; and he regrets that M. Michaud, has given no detail with regard to some species indicated as found in France, but which do not appear to live there. He observes that Lamarck has recorded two Physa (P. castanea and P. subpauca), the first from the Gorron, and the last from the environs of Montpelier, which M. Michaud does not mention. M. Deshayes adds, that we must probably not take the silence of M. Michaud, that these species have not been found, and that Lamarck, deceived by a false indication, has given them a habitat not theirs. Conrad has described an additional species.

Example, Physa fontinalis, Drap.; Bulus fontinalis, Linna. Description.—Shell sinistral, oval, diaphanous, smooth; of a yellowish brown-colour; spire very short, and rather pointed. Locality, temperate Europe, probably; England and France, certainly.—North America (Cibouline, Alabama). Conrad. Habits, &c.—Col. Montagu (Testacea Britannica) notices the species as not uncommon in stagnant pools, as well as running waters, in many parts of the kingdom, and as most frequently found under the leaves of aquatic plants. He gives a description of the animal, and says that when in motion it covers a great part of the shell with a thin pinnated membrane, thrown out on the right side, extending quite behind and partly on the left side, covering the smaller solutions: this membrane (mantle) \(a\), he says, very deeply divided, or digitated, the points of which meet and sometimes intersect on the back of the shell, and it is so transparent as scarcely to be distinguished but by the assistance of a glass. The foot he describes as long and narrow, and the former on the left side of the case with all the animals of this kind inhabiting heterostrope shells." Col. Montagu concludes his remarks on this species as follows: "It has a very considerable locomotive power, and transports itself by adhering to the surface of the water, with the shells downwards: against which it crawls with as much apparent ease as on a solid body; and will sometimes let itself down gradually by a thread affixed to the surface of the water, in the manner of the Limnæa plana (\(^{1}\) Linn. Trans., iv., 85, 1, 2.), from the branch of a tree. The property of crawling under water, against its surface, is not wholly confined to this species;\* but we know of no other testaceous animal capable of suspending itself under water in the same way.\* It has the power of throwing its shell about in an extraordinary manner, either in defence or to remove obstructions, continuing at the same time fixed by its foot. Probably this singular motion is sometimes occasioned by a minute species of Hirundo (Gordius insularis, Mill., Verne,) which infest the many other fresh-water testaceous animals; twenty or more may be seen adhering to its sides like slender white filaments."

Limnea.

Animal of oval form, more or less spiral; head furnished with two flattened triangular tentacles, carrying the eyes at their base, on the internal side; mouth furnished with an upper piece for mastication, surmounted by a sort of very short veil; foot, oval, bilobated anteriorly, narrowed posteriorly; orifice of the pulmonary cavity on the right side, on the collar, in form of a furrow, and capable of being covered by a fleshy appendage which borders it below; anus on the side, organs of generation distant, the orifice of the male intromissive organ being under the right tentacle, and that of the vagina at the entry of the pulmonary cavity. Shell delicate, fragile, of an oval oblong, with a spire more or less sharp and elongated, and an aperture longer than it is wide, sometimes very large, with a sharp edge.\(\checkmark\) not continuous on account of the preceding whorl; on the columella an oblique plait. \(\text{Rang.}\)

M. Deshayes observes (last edition of Lamarck) that the animal of Limnea presents peculiar characters. On the head are two triangular tentacles very much enlarged at the base, and having the eyes rather projecting on the upper and internal part of that base. The head is large and oval, sometimes very large, with a sharp edge.\(\checkmark\) not continuous on account of the preceding whorl; on the columella an oblique plait. \(\text{Rang.}\)

\* See post, Physa.

\* See post, Linnæa, which is said to have a similar power.

\* See note at the commencement of the article, p. 466.
mantle and a little below it that the orifice of the anus is seen.

Geographical Distribution of the Genus. — *Lymnaea* appear to occur in almost all parts of the world, but the form is most seen in the temperate and northern regions.

Habits, Food, Reproduction, &c. — Fresh waters, especially those which are stagnant, are the resort of the *Lymnaea*; in such situations they abound, feeding on the aquatic plants on whose stems they creep, and coming to the surface to respire the air. Here they may often be seen in a reversed position, and probably maintained in it by the air in the branchial cavity. Like the *Physidae* they have the power of locomotion when so situated, and may be observed moving their ventral disk, as if they were employing it against a solid surface, with the oral membrane only touched by a thin lamina (so to speak) of water, which offers sufficient resistance for its progression. In the reproduction of the species the animals are employed somewhat differently from the *Helicidae* and *Limacidae*, though, like them, each individual is furnished with both male and female organs of generation; for the same *Lymnaea* is capable of serving at the same time as a male for a second, and as a female for a third, and by this connection of one individual with two others a continuous chain of some length is not infrequently produced. No. 2313 of the fifth or allotriandrous series of preparations illustrating the principles of generation, in the Museum of the Royal College of Surgeons in London (Catalogue, vol. iv. Physiological Series), exhibits the soft parts of the generative and respiratory orifices of *Lymnaea stagnalis*, and shows how this gastropod differs from the *Limacidae* and *Helicidae* in the separation of the above-mentioned orifices from one another. The number of eggs is very great, and they are deposited on stones, stems of vegetables, &c., in elongated masses enveloped in a glairy substance, which is said to increase in proportion to the development of the embryo. For very interesting details on the reproduction and embryology of these mollusks we refer the reader to the works of Mr. Pfeiffer and of M. Dumortier.

The recent species are numerous; Lamarck recorded twelve, including *L. columnaris*, which is considered to be an *Achatina*. M. Deshayes, in his last edition of Lamarck's *Histoire*, has added eight more. Bean and Troschel have each added one.

We select as examples *Lymnaea stagnalis* and *Lymnaea auricularia*.

*Lymnaea stagnalis*. — This is *Helix stagnalis*, Linn.; *Buccinum stagnale*, Moll.: and *Bittium stagnale*, Brug.—Description. — Shell ovate-acute, ventricose, thin, pelliculid, substratid longitudinally, of a horny colour; the last whorl subangulated above; the spire conico-subulata; the aperture large.

Montagu observes that it is frequently covered with a green epidermis, and sometimes a concreted stony matter that almost obturates the upper volutions; he adds that some authors have made this shell into two or three species, apparently from size only.

Locality. The fresh sluggish or stagnant waters of England, France, &c.

*Lymnaea auricularia*. — This is *Helix auricularia*, Linn.; *Buccinum Auricula*, Moll.; and *Bittium auricularia*, Brug.—Description. — Shell amorphaceous, ventricose, ovate, thin, transparent, of a hairy colour, marked with very delicate close-set longitudinal striæ; the spire very short and acuminate.

Locality. The same with that of *L. stagnalis*.

Fossil *Lymnaea*.

*Planorbis*. — M. de Blainville ("Malacologie") mentions the number of fossil species as four or five, adding that Defrance, who increases the number to eighteen, acknowledges that the fossil state of some of them is doubtful; he notices four as analogues. Mr. G. B. Sowerby ("Genera") states that several fossil species abound in the distinctly fresh-water strata of the Isle of Wight and the neighbourhood of那里 they are very abundant, and accompanied by as great a profusion of *Lymnaea* and some other decidedly fresh-water shells.

Lamarck records only three fossil species, nor does he mark any of the recent species as occurring in a fossil state. M. Deshayes, who in his tables (Lyell) makes the number of species 23 living and 26 fossil (tertiary), records in the same place the *Planorbis cornutus*, *marginatus*, *carinatus*, *spirorbis*, and *nitidus* as both living and fossil (tertiary). We cannot find *P. marginatus* in Lamarck's first edition nor in that edited by M. Deshayes (tom. viii.) in 1838, except as a synonym to *P. complanatus*. In this last work the following recent species are marked by M. Deshayes as occurring in a fossil state: — *cornus*, *spirorbis*, *vortex*, *contorius*, *nitidus*, *complanatus*, and *Lucicosta*, on the authority of M. Bouillet; and the number of fossil species is made to amount to nine. Dr. Fitton, in his "Stratigraphical and Local Distribution of Fossils," in the strata below the chalk, notices an insiginate species of *Planorbis* (Purbeck, Oxfordshire, and Bucks).

*Physa*. — M. de Blainville, in his "Malacologie," states that it would appear that no *Physa* had at the time of his publication been found fossil. M. Deshayes, who in France gives the number of species as nine living and one fossil (tertiary); in the last edition of Lamarck the number of recent species given is ten; but the number of fossil species is the same as that stated in the tables.

*Lymnaea*. — M. de Blainville ("Malacologie") remarks that if it were clear that the species of this genus established by geologists, and among others by M. Lamarck, Brard, Brongniart, Sowerby, and De Férussac, were true, there would be at least twenty fossil species in France alone; but he adds that M. Defrance does not carry the number further than ten, two of which (from the Plaisautin) are analogues according to Brocchi. Mr. G. B. Sowerby, who unites the generic *Physa* and *Lymnaea*, observes ("Genera") that several fossil species of this genus occur abundantly in company with various *Paludinae* and *Planorbis* in the fresh-water formations; these, he adds, occur in the neighbourhood of Paris, and in the upper and lower of these formations at Head edition of the Isle of Wight. He also found them sparingly in the mixed stratum commonly called the upper marine formation, between the two, but he believes that they do not occur in any other. Lamarck noticed but one species as fossil, viz. *Lymnaea pulchella*, this being in his opinion really the analogue of the recent species of that name. M. Deshayes in his tables (Lyell) gives the number of *Lymnaea* as fifteen living and twenty-seven fossil (tertiary), and the species *peregra*, *auricularia*, and *unisquina* as both living and fossil (tertiary). In the last edition of Lamarck the following recent species are marked by him as also occurring in a fossil state: — *pulchella*, *ovata*, *peregra*, and *pulchella*. *L. auricularia* is not marked as fossil in this edition, and we do not find *L. auricularia* as a species in either.

The number of strictly fossil species recorded in the last edition of Lamarck is eleven, and in that edition M. Deshayes remarks that a sufficiently great number of *Lymnaea* are...
found in a fossil state, but that up to the time when he wrote no species was recorded in the beds below the tertiary, and even in these the Limmata only appear in the lower fresh-water strata. They show themselves, he adds, in the upper beds of the Paris calcareous grissier, and are found in nearly all the strata immediately below, not only of the Parisian epoch, but also in the two great tertiary groups that surmount it. Dr. Fitch, in the table above quoted, records a Limmata (with a note of interpolation) occurring in the Purbeck strata, Oxfordshire, in the 'malm,' Garmston.

Mr. Lea, in his 'Contributions to Geology' (8vo. Philadelphia. 1833), notices the tufaceous latacestrine formation of Syracuse, Onondaga county, New York. He found the subterraneous tertiary, tertiary, and tertiary and in Syracuse, established by the observation of several species, of which he gives an amphitheatre, said to have been built by the emperor Trajan, of which there were sufficient remains in 1713 to admit of a plan being drawn; it was about 1500 feet in circumference. It was entirely destroyed in 1714, in order to form the Place d'Orsay. There are now no remains at Limmoges in good preservation, except a subterraneous aqueduct, which conveys the water of a fountain in the upper part of the town. In the fifth century Limmoges came into the power of the Visigoths; and was successively pillaged or destroyed by the Franks (twice) and Normans. It was ceded to the English by the treaty of Bretigny, and formed part of the great duchy or principality of Aquitaine under Edward the Black Prince. [Bordeaux.] The people of Limmoges were possessed of a small bishopric, of which the first or last成品 (A.D. 1370) was the capture of the town. Irritated by treachery, the Prince, who was then wasting under the disease which ultimately brought him to his grave, put three thousand of the inhabitants to death. The town, however, in a short time, was restored to the bishop, who had been ordered for execution, was released by the intercession of the Pope.

Limmoges is built on a hill which commands a prospect of the delightful valley of the Vienne. The older part of the town is built upon a plain, where is a great depth of very hard clay, which forms the rice of the hill, and is covered with a succession of small thin strata of impure limestone, in which the quarrymen work on a large scale. The remains of the families Lymnaena and Peristomiana, analogous to the species now inhabiting the adjacent waters, line and form the shores of the whole circumference of the lake, to the depth and breadth of many fathoms. Not having visited this interesting lake myself, I repeat what has been communicated to me by intelligent scientific friends, who have examined it, and on whose report the most implicit reliance may be placed. Such is the quantity of bleached shells now remaining there, that thousands of these small species, in a state of perfect whiteness, could be obtained if any useful purpose required the removal of them. For agricultural purposes this mass might prove of great utility. One friend, I remember, mentioned to me that he had obtained a sharp pointed pole, which he inserted ten or twelve feet perpendicularly into the mass, on the shore, near to the edge of the water, without its having passed through it. As far as can be ascertained, this mass seems to form the whole thickness of the strata, and it may at some future time, perhaps not far distant period form a tufaceous latacestrine deposit similar to that of Syracuse.

LIMNORIA. [Isopoda, vol. xiii, p. 53.] In 1838 the Rev. F. W. Hope exhibited to a meeting of the Zoological Society a piece of deal perforated throughout by Limnoria terebrans, in which many of these destructive crustaceans might still be detected; and he stated that the oaken piles of the pier at Southend had been eased with deal, and then surrounded with a sheathing of iron, to protect them from the Limnoria. Instead of producing the desired effect, this plan appeared to have accelerated the destruction of the piles; for the Limnoria made its way from beneath the sheathing and the pier, and very quickly destroyed the deal casing, as shown by the piece exhibited. Mr. Hope expressed his belief that wood could not by any means be effectually shielded from this animal if exposed to its attack; and that iron, protected from the decomposing action of the water by some varnish, although requiring a much greater outlay at first, would in the end be found the least expensive of the two. (See further, Edinb. New Phil. Journal, 1834 and 1835.)

LIMOGES, a city in France, capital of the department of Haute (Upper) Vienne; situated on the right bank of the Vienne, 215 miles in a direct line S.S.W. of Paris, or 236 miles by the road through Orleans and Chateauroux. Limmoges was the chief town of the Celtic tribe the Lemorici, and is supposed to belong to the part of Gaul's province of Limousin on whose names. It was called Augustoretum by the Romans, under whom it was a place of considerable importance, and became in the third century the seat of a bishopric. It was the seat of the bishopric, about which no Roman roads, ancient, or an amphitheatre, said to have been built by the emperor Trajan, of which there were sufficient remains in 1713 to admit of a plan being drawn; it was about 1500 feet in circumference. It was entirely destroyed in 1714, in order to form the Place d'Orsay. There are now no remains at Limmoges in good preservation, except a subterraneous aqueduct, which conveys the water of a fountain in the upper part of the town. In the fifth century Limmoges came into the power of the Visigoths; and was successively pillaged or destroyed by the Franks (twice) and Normans. It was ceded to the English by the treaty of Bretigny, and formed part of the great duchy or principality of Aquitaine under Edward the Black Prince. [Bordeaux.] The people of Limmoges were possessed of a small bishopric, of which the first or last成品 (A.D. 1370) was the capture of the town. Irritated by treachery, the Prince, who was then wasting under the disease which ultimately brought him to his grave, put three thousand of the inhabitants to death. The town, however, in a short time, was restored to the bishop, who had been ordered for execution, was released by the intercession of the Pope.

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